UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET NE
ATLANTA GEORGIA 30365

SEP 23 1994

4WD-SSRB

MEMORANDUM

SUBJECT: Pepper's Steel Site
Five Year Review

FROM: Douglas F. Mundrick, Chief
South Superfund Remedial Branch

THRU: Richard D. Green, Associate Director
Office of Superfund and Emergency Response

TO: Joseph R. Franzmathes, Director
Waste Management Division

Attached for your approval is a copy of the Five-Year Review Final Report for the Pepper's Steel and Alloys, Inc., (Pepper's Steel) Site located in Dade County, Florida. Section 121(C) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended requires that if a remedial action is taken that results in any hazardous substances, pollutants, or contaminants remaining at the site, the Environmental Protection Agency (EPA) shall review such remedial action no less often than each five years after initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented.

Because the Record of Decision (ROD) was a pre-SARA remedy, a policy Five-Year Review was appropriate for this site in accordance with the May 23, 1991, Office of Solid Waste and Emergency Response (OSWER) directive 9355.7-02.

The Pepper's Steel site was added to the National Priorities List (NPL) in September 1983 following a site investigation by the U.S. Environmental Protection Agency (EPA) and NUS Corporation. The investigation revealed Polychlorinated Biphenyl (PCB) contaminated soils which prompted EPA to perform an immediate removal action of these soils. Following a Remedial Investigation/Feasibility Study (RI/FS), an Enforcement Decision Document (EDD) (equivalent to a Record of Decision) was issued to the Potentially Responsible Parties (PRPs) by EPA's Regional Administrator to perform remedial actions. These actions commenced in March 1987 and concluded in January 1989.

Site specific cleanup objectives at the Pepper's Steel site are based on public health and environmental concerns and are consistent with section 300.68 (e)(2) of the NCP, EPA guidance, and state and local regulations. Based on the regulatory guidance and the level of contamination found at the Pepper's Steel site, the following cleanup levels were selected for these contaminants in order to achieve acceptable leachate concentrations:

- PCB concentration in soil: $ 1 ppm (Approximately 48,000 c.y.)
- Lead concentration in soil: $ 1000 ppm (Approximately 21,500 c.y. of which substantial amounts are commonly contaminated with PCBs)
- Arsenic concentration in soil: $ 5 ppm (Approximately 9,000 c.y. are commonly contaminated with lead)

Remedial Construction Activities

Site cleaning activities began at the Pepper's Steel and Alloys site in early March 1987 to remove all surface debris and trash prior to construction activities. Construction began after completion of site cleaning activities in May 1987. The basic construction process consisted of:

- Store, analyze, treat, and dispose of all PCB contaminated free oils encountered during the site excavation,
- Excavating and stockpiling the soils contaminated above the cleanup levels,
- Screening the contaminated soils to obtain processable soil, inorganic material (steel, concrete, etc.) which could be incorporated into the monolith, and organic material to be shipped to an approved landfill for proper disposal,
- Processing the contaminated soils with the cement-flyash binder material in the mixing area,

- Backfilling the excavations with the processed material and inorganic debris,
- Capping the processed monolith to obtain the final grade for proper runoff,
- Constructing the perimeter drainage collar containing one inch wash rock to receive and control runoff from the monolith,
- Construction of the monolith and perimeter wells for post-remediation monitoring, and
- Capping the monolith with a twelve inch layer of crushed limestone rock to protect it from vehicular traffic and acid rain.

The attached Five-Year Review Final Report, dated April 1994, has been reviewed by Region IV and Headquarters staff. The attached report documents the current conditions at the site, states that the remedy appears to be performing as intended, and makes recommendations regarding future site reviews. Recommendations included monitoring the integrity of the monolith on a periodic basis, continuation of ground water monitoring, and considering a removal action on an abandoned building on the site.

Based on the site visits and interviews conducted during the review, the remedial action meets the requirements of the Record of Decision (ROD). Post-remediation ground water monitoring is being conducted once every two and one-half years. The next round of ground water sampling is scheduled for July 1995. EPA will ensure that the site remains protective by conducting Five-Year Reviews in the future. The next review will be conducted before July 1999.

Attachment

Approved by: _____ **Date:** 4/27/94

Joseph R. Franzmathes, Director
Waste Management Division
EPA Region IV

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET. N.E.
ATLANTA. GEORGIA 30365

NOV 02 1994

4WD-SSRB

Mr. Randall Chaffins
U.S. EPA (5203-G)
Hazardous Site Control Division
Design And Construction Management Branch
Washington, D.C. 20460

RE: Pepper's Steel And Alloys site, Five Year Review

Dear Mr. Chaffins:

Enclosed please find the Final Five Year Review Report for the above referenced project. If you have any questions, please call me at 404-347-3555, extension 6240.

Sincerely,

John M. Zimmerman

John M. Zimmerman
Remedial Project Manager
South Superfund Remedial Branch

Enclosure

cc: Marvin Collins, FDEP; with enclosures
Doug Pasley, Florida Power & Light; with enclosures
Information Repository; with enclosures

Document Control No. 4400-20-ADRZ

Revision 2

FIVE-YEAR REVIEW
FINAL REPORT

PEPPER'S STEEL AND ALLOYS, INC. SITE
MEDLEY, DADE COUNTY, FLORIDA

Work Assignment No. 20-4S80

APRIL 1994

Region IV

U.S. EPA CONTRACT NO. 68-W9-0057

Roy F. Weston, Inc.
1880-H Beaver Ridge Circle
Norcross, Georgia 30071

WESTON W.O. No. 04400-020-092-0008-00

FIVE-YEAR REVIEW
FINAL REPORT

REVISION 2

FIVE-YEAR REVIEW
PROJECT ASSISTANCE

PEPPER'S STEEL AND ALLOYS, INC. SITE
MEDLEY, DADE COUNTY, FLORIDA

U.S. EPA Contract No. 68-W9-0057
Work Assignment No. 20-4S80

Document Control No. 4400-20-ADRZ

APRIL 1994

Prepared by: _____ Date: 4/12/94
Ralph P. McKeen, P.E.
WESTON Work Assignment Manager

Approved by: _____ Date: 4/12/94
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WESTON Region IV Program Manager

Approved by: _____ Date: _____
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U.S. EPA Remedial Project Manager

Approved by: _____ Date: _____
Rob Stern
U.S. EPA Regional Project Officer

Approved by: _____ Date: _____
Joseph R. Franzmathes
Waste Management Division Director
U.S. EPA Region IV

WESTON W.O. No. 04400-020-0008-00

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SECTION 1
BACKGROUND

1.1 INTRODUCTION

The Pepper's Steel and Alloys, Inc. (Pepper's Steel) Site was added to the National Priorities List (NPL) in September 1983 following a site investigation by the U.S. Environmental Protection Agency (EPA) and NUS Corporation. The investigation revealed Polychlorinated Biphenyl (PCB) contaminated soils which prompted EPA to perform an immediate removal action of these soils. Following a Remedial Investigation/Feasibility Study (RI/FS), an Enforcement Decision Document (EDD) (equivalent to a Record of Decision) was issued to the Potentially Responsible Parties (PRPs) by the EPA Regional Administrator to perform remedial actions. These actions commenced in March, 1987 and concluded in January, 1989. A description of the remedial actions is presented in Section 1.4 of this report.

Pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as amended by the Superfund Amendments and Reauthorization Act (SARA), section 121(c), and section 300.430 (f)(4)(ii) of the National Oil and Hazardous Substances Contingency Plan (NCP), a statutory five-year review is required for remedial actions selected on or after October 17, 1986. This, however, is a policy review since the EDD was signed pre-SARA. The review must be completed within five years of the initiation of the remedial action, and every five years thereafter, for sites which will not allow for unlimited use and unrestricted exposure after attainment of the performance standards stated in the Record of Decision.

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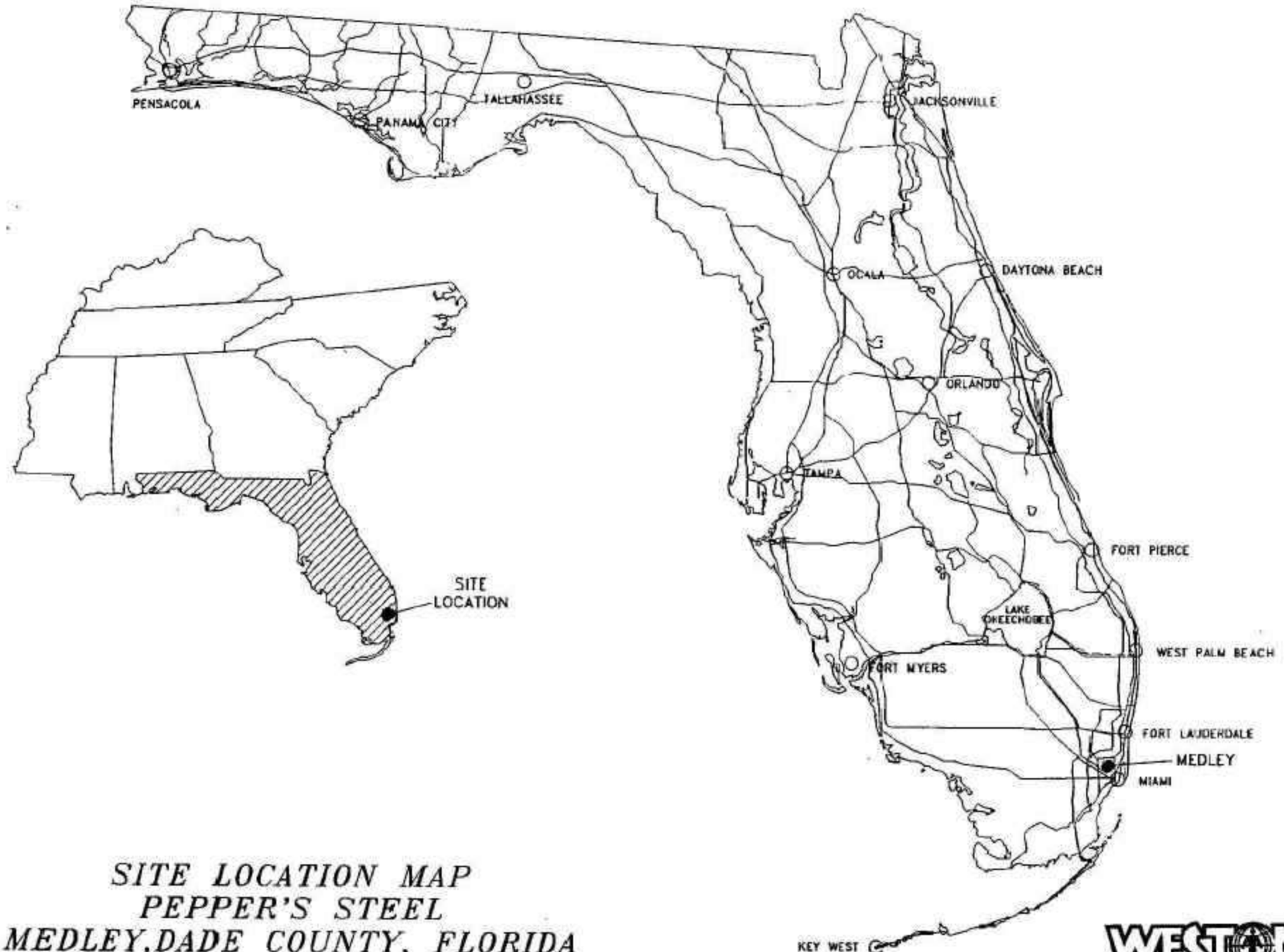
EPA Region IV decided that a Level I Five-Year Review was required at the Pepper's Steel Site to confirm that the remedial action and associated performance standards as presented in the EDD of March 12, 1986, adequately protect human health and the environment (i.e., the remedial action is operating and functioning as designed and institutional controls are in place and are protective), and to evaluate whether original performance standards, such as cleanup levels, remain protective of human health and the environment. This report contains the information collected by Roy F. Weston, Inc. (WESTON®), on behalf of EPA Region IV, during the review and evaluation process.

1.2 SITE LOCATION AND DESCRIPTION

The Pepper's Steel Site is located approximately 10 miles northwest of Miami in the town of Medley, Florida (See Figure 1-1). The site occupies 30 acres known as Tracts 44, 45, and 46 adjacent to the Miami Battery Warehouse (see Figure 1-2).

The site has been used by several businesses which have conducted a variety of operations. Some of these operations include battery manufacturing, fiberglass boat manufacturing, and the construction of pre-cast concrete products. Repair services for trucks and heavy equipment, as well as automobile scrap operations, have also been performed at the site.

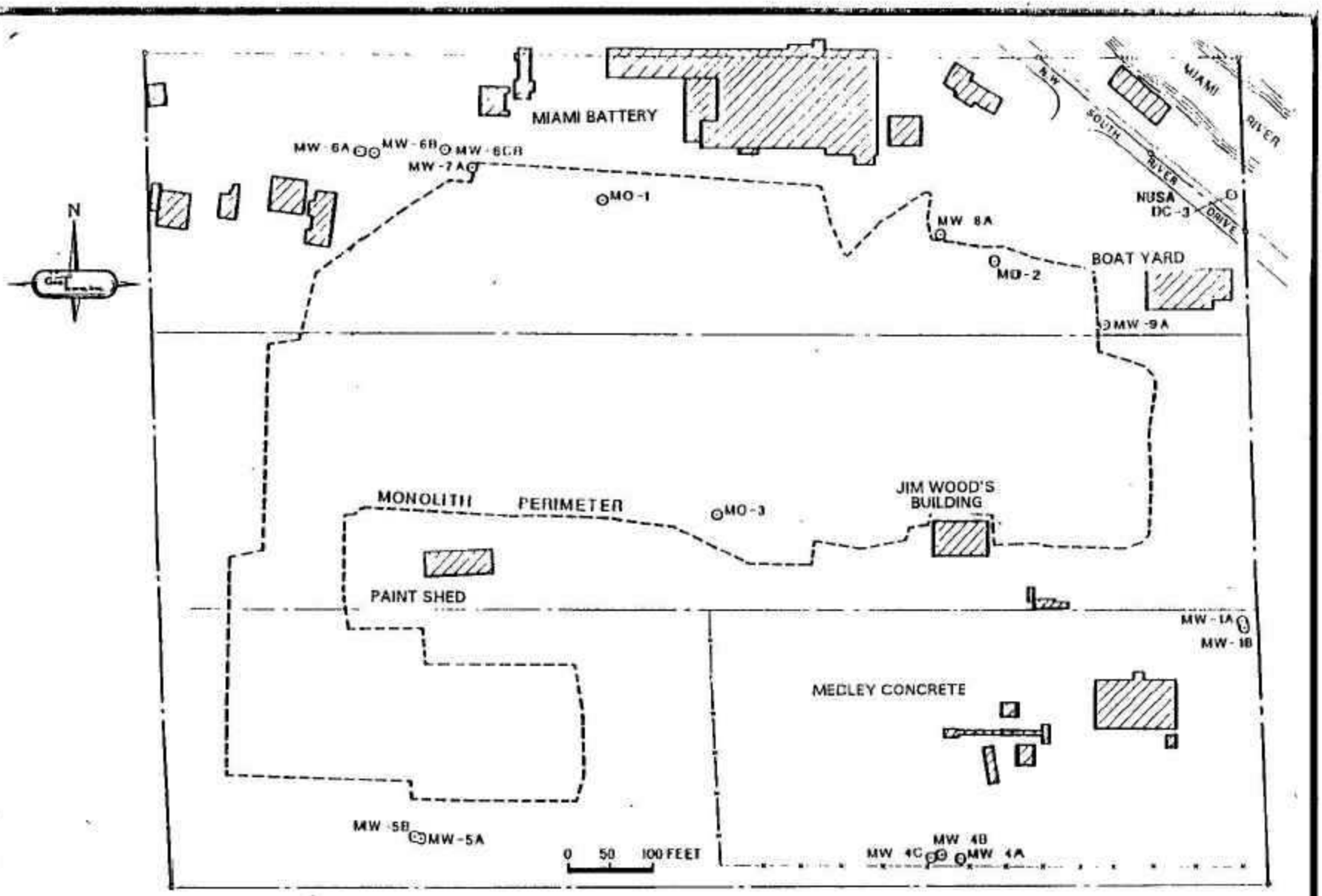
Topographically, the site is relatively flat consisting of a solidified matrix (monolith) and clean soil fill overlain with crushed limestone. The monolith is crowned near the center and sloped at 2 to 3% to perimeter drainage ditches. The groundwater at the site is at a depth of five to six feet below ground surface. Three different depth zones of groundwater flow have been



SITE LOCATION MAP
PEPPER'S STEEL
MEDLEY, DADE COUNTY, FLORIDA

FLORIDA

WESTON
MANAGERS DESIGNERS/CONSULTANTS



SITE SKETCH
PEPPER'S STEEL AND ALLOY SITE

Source: GeoTrans, Inc.

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identified for monitoring. The depths of these zones are 15 feet, 25 feet, and 50 feet below surface and are labeled as Zones A, B, and C, respectively.

1.3 HISTORY

The Dade County Department of Environmental Management (DERM) was the first regulatory agency to investigate the site. This investigation was performed in 1978 following a citation issued to Pepper's Steel. The investigation included sampling and evaluation of groundwater wells in the area. The next action at the site was performed in 1982 when DERM excavated test pits at the site and discovered PCB contamination in the shallow subsurface materials. In 1983, the EPA performed a site investigation. The results of the investigation showed that significant threats were present that prompted an immediate removal action by the EPA in 1983. The site was subsequently placed on the NPL in late 1983.

The EPA commenced RI/FS activities in early 1984. Contaminants identified included PCBs, organic compounds, and heavy metals. These contaminants were found in soil, sediments, and the groundwater. PCB contaminated oil was discovered to be floating on top of the groundwater. During the EPA RI/FS process, the PRPs identified by the EPA proposed a conceptual remedial action for the site.

On March 12, 1986, the EPA Regional Administrator approved the EDD which outlined the selected remedial alternative. The PRPs retained the services of an environmental contractor to perform the remedial design. The remedial design for the soil cleanup activities was completed in August, 1986 while the remedial design for groundwater monitoring was not completed until January, 1987.

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Remedial actions commenced in March, 1987 and were completed in January, 1989. The Five-Year Review was then initiated in March 1992. On January 12, 1989, the EPA conducted a final inspection with the State, county, and PRP representatives to evaluate the remediation efforts by the PRPs. At this time it was determined that the requirements set forth in the EDD had been successfully executed. The PRPs submitted a Final Remedial Action Report on June 26, 1989. Subsequently, the EPA notified the PRPs that they had adequately completed the construction of the remedy as described in the Remedial Action Work Plan.

1.4 REMEDIAL OBJECTIVES/ACTION

Remedial Objectives

Site specific cleanup objectives at the Pepper's Steel site are based on public health and environmental concerns and are consistent with Section 300.68 (e) (2) of the NCP, EPA guidance, and state and local regulations.

Based on the regulatory guidance and the level of contamination found at the Pepper's Steel Site, the following cleanup objectives were selected:

- Removal and/or treatment of leachable heavy metals and metalloids to prevent contamination of wells and the Biscayne Aquifer which is the sole source of potable water supply for about three million people in the Southeastern Florida area.
- Removal of all PCB contaminated soil to the lowest level below 50 ppm practicably attainable through the use of normal. cleanup methods.

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The principal environmental and public health concern regarding the existing contamination level at the Pepper's Steel Site is pollutant migration into the Biscayne Aquifer and into private wells. Because of the fragile nature of the aquifer and the large number of people who depend on it, the EPA has been particularly careful in its evaluation and selection of a remedy for this site. Any selected remedial alternative must demonstrate, via leachability studies and long-term monitoring, that levels of contaminants released into drinking water sources are below the endangerment assessment and were based on either EPA Ambient Water Quality Criteria or Primary Drinking Water Standards, as available.

Based on the acceptable leachate concentrations, modeling of groundwater flow, regulatory requirements and the extent of contamination found at the site, the endangerment assessment determined that three contaminants were found in sufficient concentrations to require action - PCB, lead, and arsenic.

The following cleanup levels were selected for these contaminants in order to achieve acceptable leachate concentrations:

- Store, analyze, treat, and dispose of all PCB contaminated free oils encountered during the site excavation.
- Remove, contain, stabilize, fix or treat soils containing the following levels of contamination:

  PCBs $ 1ppm (Approximately 48,000 c.y.)

  Lead $ 1,000 ppm (Approximately 21,500 c.y. of which substantial amounts are commonly contaminated with PCBs)

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Arsenic $ 5 ppm (Approximately 9,000 c.y. are commonly contaminated with lead)

Remedial Construction Activities

Site cleaning activities began at the Pepper's Steel and Alloys site in early March, 1987 to remove all surface debris and trash prior to construction activities. Construction began after completion of site cleaning activities in May, 1987. The basic construction process consisted of:

- Excavating and stockpiling the contaminated soils
- Screening the contaminated soils to obtain processable soil, inorganic material (steel, concrete, etc.) which could be incorporated into the monolith, and organic material to be shipped to an approved landfill for proper disposal
- Processing the contaminated soils with the cement-flyash binder material in the mixing area
- Backfilling the excavations with the processed material and inorganic debris
- Capping the monolith with processed material to obtain the final grade for proper runoff
- Constructing the perimeter drainage collar containing one inch wash rock to receive and control runoff from the monolith
- Construction of the monolith and perimeter wells for post-remediation monitoring

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- Capping the monolith with a twelve inch layer of crushed limestone rock to protect it from vehicular traffic and acid rain and to provide a base for future land use

1.5 ARARs REVIEW

Section 121 (d) (2) (A) of CERCLA incorporates into the law the CERCLA Compliance Policy, which specifies that Superfund remedial actions must meet any Federal standards, requirements, criteria, or limitations that are determined to be legally applicable or relevant and appropriate requirements (ARARs). Also included is the provision that State ARARs must be met if they are more stringent than Federal requirements.

The ARARs identified and considered in the Feasibility Study and EDD for the solidification process included:

- Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)
- Resources Conservation and Recovery Act (RCRA)
- PCB Requirement for Disposal (TSCA)
- 40 CFR Sub-part D.761.60
- Clean Water Act
- National Pollutant Discharge Elimination System (NPDES)

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WESTON reviewed these ARARs with respect to change in the standards as well as any new standards promulgated since the remedial action.

A Maximum Contaminant Level (MCL) has been developed for PCB subsequent to the remedial actions. The current National Primary Drinking Water Standard is 0.5 ug/l (40 CFR Part 141). Since a primary concern at this site was potential contamination of the Biscayne Aquifer, a conservative approach was used to establish acceptable leachable contamination from the monolith. The PCB limit was based on a 1×10^{-6} cancer risk level. This level was 0.008 mg/l which is well below the current MCL.

Conversations with the Florida Department of Environmental Regulations (FDER) revealed that the State has adopted a drinking water standard for lead of 15 ug/l (ppb). This is potentially significant since the standard at the time of the remedial action was 50 ppb and is the action level in the Consent Decree.

The current site conditions regarding the abandoned Jim Woods building potentially would require CERCLA actions. The site status and potential for removal actions is further detailed in Section 3.2 of this report. At the time of the remedial activities, this building was occupied and secured but conditions have changed and the building is now abandoned and accessible.

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SECTION 2

SITE CONDITIONS

2.1 SUMMARY OF SITE INSPECTION

WESTON representative Ralph P. McKeen performed a site inspection on December 9, 1992 during the site sampling visit. The inspection consisted of a walk-through of the site. Florida Power & Light representative Douglas Pasley provided access and acted as the guide throughout the area. EPA Remedial Project Manager, John Zimmerman was also on-site for the inspection. The purpose of this walk-through was to evaluate components of the remediation with respect to requirements in the EDD. WESTON utilized the Operations and Maintenance (O&M) Field Observation Report as guidance in conducting the inspection of the facility. This report, prepared by the EPA Superfund Branch, July 1989 and completed by WESTON, has been included as Appendix A.

The following is a summary of WESTON's observations made during the site tour with references to photographs which are included as Appendix B of this report. Photograph No. 3 is a typical view of the surface conditions. It is heavily vegetated with grass, Florida Holly, and Australian pine trees. The dense vegetation made it difficult and even impossible to perform observations of the monolith structure.

Some open areas were observed with the crushed limestone surface clearly visible (Photograph No. 4). This cover was designed to protect the underlying monolith from wind and surface water erosion and to neutralize acid rain. The rock surface appears to be functioning well in the area. It was impossible to make an assessment of the crown and slope of the surface due

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to the dense vegetation. Similarly, it was difficult to observe any signs of settlement in the cover.

The inspection plan was to follow the perimeter fence line to observe the condition of the fence and drainage collar. A large hole was observed in the northwest section of the fence (Photograph No. 5). A path on both sides of the fence indicated regular pedestrian traffic onto the site. Photograph No. 6 is a typical view of the drainage collar. Most sections appeared to be in good condition and functioning as intended. Unfortunately, approximately 50 percent of the fence line and drainage collar was not visible. Photograph No. 8 shows the high grass preventing access for observation purposes.

High winds from Hurricane Andrew this year blew some of the pine trees over at the roots (Photograph 10). The Photograph shows that the trees have a shallow root system which grow horizontally; however, some of the limestone cover was retained on the roots when they were pulled up.

We then proceeded to the southeast side of the monolith to observe the abandoned Jim Woods Building (Photograph No. 11, see Figure 1-2). Inside the building many old engine and truck parts were observed (Photograph No. 12). Unlabelled drums containing liquids (Photograph No. 13) and compressed gas cylinders (Photograph No. 14) were observed strewn about inside the building. Due to holes in the perimeter fence, this building is accessible and the contents could pose a potential hazard to human health.

As part of the site inspection activities, a WESTON biologist visited the site to perform an assessment of vegetative growth on the site. The root systems and the potential effects on the

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monolith were of concern to EPA. WESTON's Paul Durr performed a vegetation survey on May 12-13, 1993. A complete report of this assessment is included as Appendix D. In general, WESTON found that the current root systems of the trees do extend through the limestone cover and then proceed horizontally along the hardened surface of the monolith. Further observations are that fissures most likely will develop in the monolith due to differential settling and normal expansion and contraction. These fissures most likely will be invaded by root systems exacerbating the natural fissuring process. This will in effect increase the surface area exposed to weathering.

2.2 SUMMARY OF SITE SAMPLING TRIP

WESTON collected split samples from seven monitoring wells. The PRP contractor, GeoTrans, Inc. collected the samples with a peristaltic pump and WESTON collected one-gallon and one-liter sample volumes for PCB and metals analysis as described in the Groundwater Sampling Plan (Appendix C). See Figure 2 in the Groundwater Sampling Plan for location of split sample locations. WESTON submitted these samples along with an equipment rinse sample to the EPA-ESD Laboratory in Athens, Georgia for analysis. The following table summarizes the sampling analytical results of both the EPA and the PRP's, Florida Power & Light (FP&L). FP&L utilized Savannah Laboratories for analysis of their samples. A complete copy of the analytical results are included as Appendix E.

As shown in the table, the results of both EPA and FP&L are comparable. The results indicate that the contaminants of concern within the solidified matrix appear to be stabilized and are not currently impacting the groundwater systems beneath the site. Of the contaminants of concern,

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only lead was detected in one sample (MW-6-A) at a level that exceeds current drinking water standards.

Monitoring Well Analytical Summary

Well No.	Well Depth (ft. bgs.)	Water Level (ft. bgs.)	PCB (ug/l)		Lead (ug/l)		Arsenic (ug/l)	
			EPA	FP&L	EPA	FP&L	EPA	FP&L
MO-1	11.2	9.5	1.2U	< 1.0	5.0U	2.8	30U	1.2
MO-2	13.5	10.0	1.2U	< 1.0	7.5	4.8	30U	< 1.0
MO-3	14.0	10.6	1.2U	< 1.0	5.0U	1.2	30U	2.9
MW-6A	14.5	5.4	1.2U	< 1.0	15.0	16.0	30U	< 1.0
MW-6B	30.0	6.0	1.2U	< 1.0	5.4	2.7	30U	< 1.0
MW-6CR	57.0	6.1	1.2U	< 1.0	5.0U	< 1.0	30U	< 1.0
MW-9A	17.2	4.7	1.2U	< 1.0	5.0U	< 1.0	30U	< 1.0
EB-1	-	-	1.2U	< 1.0	5.0U	1.0	30U	< 1.0

J = Estimated Value
U = Material was analyzed but not detected. The number is the minimum quantitation limit.

2.3 SUMMARY OF INTERVIEWS

The Five-Year Review process requires that key individuals involved with the site be contacted for interviews. The interviews process in intended to ascertain any new applicable information regarding the selected remedy, site history, and other site-specific issues.

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Mr. Douglas C. Pasley, Jr., P.G., FP&L representative, was the initial contact regarding the site. Mr. Pasley is a Geohydrologist for environmental affairs with FP&L and has been involved with the site since the remedial actions were performed. Mr. Pasley believed that the solidification/stabilization technique performed at the site was state-of-the-art and was designed in great detail. He feels that the monolith continues to perform as intended by containing the contaminants and preventing release to the groundwater. He stated, "They have performed extensive leach testing during the design and the data collected during this review speaks for itself." FP&L feels that the groundwater data has shown that the remedial action has been successful as predicted. Mr. Pasley also remarked that although the fence around the property has been breached, it is no longer necessary. He said that it was installed for security reasons for the remediation program only. He said maintenance of the site is not required under the Consent Decree and is not necessary due to the design of the remedy. Mr. Pasley was not concerned about the dense vegetation at the site stating that all the trees had shallow root systems which did not affect the integrity of the crushed limestone rock cover.

WESTON contacted the Dade County Department of Environmental Resources Management (DERM) in Miami, Florida for comment. The Hazardous Waste Section of DERM has been working with this site since 1978 during their initial investigation. Mr. Enda Colleran responded by forwarding a copy of DERM's letter dated July 29, 1992 (Appendix F) which responds to FP&L's request to discontinue groundwater sampling. Mr. Colleran reiterated DERM's position that they recommended continuation of groundwater monitoring. He further added that DERM has not been able to split groundwater samples. This seemed to be a problem area. No other comments relative to the performance of the remediation and monolith integrity were provided.

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Dr. Collins also added that the State has reviewed their drinking water levels for lead and that it had been changed to 15 ppb. WESTON contacted the Bureau of Groundwater & Drinking Water and confirmed this change. This is different from the Federal MCL of 50 ppb.

Charles P. Spalding, Hydrogeologist with GeoTrans, Inc., was contacted to provide information regarding the groundwater monitoring and hydrology of the site. He has been involved with the groundwater monitoring program since 1988. Mr. Spalding stated that, in general, groundwater flow directions do not change, based on 3-point analysis. The direction of flow is generally north-northeast and is not influenced by the nearby Miami canal, nearby well, fields, or tidal movement. Even changes in water levels due to hurricanes had no effect on the direction of flow.

WESTON contacted former EPA-RPM, Diane Scott, to discuss activities during the time period she was involved with the site. Ms. Scott clarified the O&M issue by stating that EPA has attempted to attain some degree of O&M from PRP's and landowners without success. The EPA did draft a proposed plan in July 1989, which includes procedures for regular scheduled observation and maintenance activities (Appendix G). She further clarified that nowhere in the Consent Decree or EDD is it mandated that FP&L perform O&M activities other than groundwater monitoring.

Dr. Leslie R. Dole, consultant to FP&L and designer of the monolith structure was contacted to comment on the performance of the structure as well as the "proposed" O&M Plan. Dr. Dole reiterated many of his comments presented in a letter dated March 31, 1993 regarding a review of the EPA proposed O&M Plan. He stated that the monolith was proven to perform well during the induction period when it was created and now, five years later, the strength,

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durability, permeability, and leaching performance is better. Dr. Dole remarked that the geochemistry of the design is sound and it was designed such that O&M activities are not necessary to maintain the monolith performance.

2.4 AREAS OF NON-COMPLIANCE

WESTON observed several areas on the site which do not conform with the "proposed" O&M plan developed by the EPA. These areas include holes in the fence, dense vegetation, and trees. The main area of concern is the fact that the excessive vegetation prohibits observations and inspections of the perimeter ditch and overall limestone cover. Inspection of these elements is necessary to make an evaluation for settlement and/or erosion which are key elements in the maintenance efforts. During the site inspection, it was impossible to view 50 percent of the site.

The lack of O&M is not an official area of non-compliance since the EDD and Consent Decree only require groundwater monitoring. The EPA continues to pursue the O&M issue with other known PRPs. Based on the current conditions, O&M activities should be resolved before the site becomes completely engulfed in vegetation to the point where monitoring of the monolith wells would be impossible.

The groundwater monitoring is in compliance with the levels specified within the EDD, based on the results of this sampling effort. All contaminant levels were well below the limits defined in Appendix B.2 of the Consent Decree, according to former RPM Diane Scott.

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SECTION 3

RECOMMENDATIONS

3.1 TECHNOLOGY RECOMMENDATIONS

Overall, O&M has been neglected with the exception of groundwater monitoring. WESTON believes that the proposed O&M Plan developed by EPA, if implemented, would have substantial merit in assuring that the site is properly maintained during the post-closure period. A complete evaluation of the monolith and cap cannot be made regarding settlement and erosion due to the fact that it is covered with heavy vegetation. Settlement & erosion are key elements to determining the integrity of the system and should be observed and inspected regularly. While the vegetation assessment revealed that a complete woody vegetation removal is not warranted at this time, it would be prudent to monitor the integrity of the monolith on a periodic basis.

Although the fence is not required under the Consent Decree, consideration should be given to the potential hazards to those entering the property. Specifically, those associated with the abandoned Jim Woods building contain unknown drums and compressed gas cylinders.

3.2 REQUIREMENTS FOR RECOMMENDATION IMPLEMENTATION

Although the results of the groundwater sampling showed no levels above action levels, it is recommended that groundwater monitoring be continued. The frequency may only need to be once per year, since the standard by which the continued protectiveness of the remedy is evaluated is the comparison of the levels of contamination of groundwater with the limits defined in the EDD.

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The status of the Jim Woods building requires immediate attention. It is a direct contact threat as long as access is not restricted. The miscellaneous equipment and parts are valuable to nearby businesses as well as curious observers. Any individuals rummaging around the building could push over the drums or accidently damage the unprotected valves of the compressed gas cylinders. Either one of these scenarios could create a release of unknown, potentially hazardous materials. There are threats which may meet the criteria for initiating a removal action as specified in Section 300.415 of the NCP or at least a removal site evaluation under section 300.410.

3.3 STATEMENT ON PROTECTIVENESS

Based upon the groundwater sampling results, the remedial action appears to be performing as intended. None of the contaminants of concern appear to be leaching from the monolith and levels are below the action levels specified in the Consent Decree. However, the lead levels may need revision based on a review of current state and federal drinking water standards. The lead concentrations in MW-6A observed during this review were right at the new State of Florida's 15 ppb level.

Protection of human health of individuals entering the property through holes in the fence is a concern particularly due to the status of the abandoned Jim Woods building as mentioned in the previous section.

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3.4 NEXT REVIEW

During the next review, WESTON suggests a similar format and level of effort. Groundwater sampling should also be performed. A close look at the tree growth should be made along with the perimeter fence.

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APPENDIX A

O & M FIELD OBSERVATION REPORT

REPORT OF FIELD OBSERVATIONS
PEPPER'S STEEL & ALLOYS SITE

Observation Report No.: 5-yr review Date of Observation: 12 / 9 / 92

Time Arrived On-site: 0650 Time Departed Site: 1800

Field Personnel: Ralph P. McKeen (WESTON); John Zimmerman (EPA); Douglas Pasley (FP&L); Chuck Spalding (GeoTrans)

Section A: Crushed Limestone Cover

	YES*	NO	Not Observed	Comment No.
1. Minor Settlement of Cover	( )	( )	(XX)	
2. Major Settlement of Cover	( )	( )	(XX)	
3. Evidence of Erosion	( )	( )	(XX)	
4. Evidence of leachate seepage	( )	( )	(XX)	
5. Ponded water on cover	( )	( )	(XX)	

Section B: Perimeter Drainage Ditch System

1. Sloughing, erosion or vegetation on ditch slopes	(XX)	( )	( )	2
2. Vegetation growth in ditch channel	(XX)	( )	( )	3
3. Ponded water, impairment of flow, sedimentation in ditch	( )	( )	(XX)	

Section C: Monitoring Wells

1. Wells locked	(X)	( )	( )	
2. Guard posts missing or damaged	( )	(XX)	( )	
3. Protective casing missing or damaged	( )	(XX)	( )	
4. Concrete pads damaged or cracked	( )	(XX)	( )	
5. Possible surface water infiltration into wells	( )	(XX)	( )	

Section D: Security Fence

	YES*	NO	Not Observed	
1. Holes in the fence	(XX)	( )	( )	4
2. Structural problems with the fence or gate(s)	(X)	( )	( )	5
3. Gate unlocked	( )	(X)	( )	
4. Broken or missing lock	(X)	( )	( )	6

Section E: Access Road

1. Pot holes, erosion of road	( )	(X)	( )	
2. Excessive vegetation on road	( )	(X)	( )	

* If yes, assign a comment number in the last column and see page 2 for instructions.

Signature of Observer: Ralph M Van Date: 12/9/92

Observation Report No.: 5-yr review Date of Observation: 12 / 9 /92

Instruction: If any item is checked "YES", provide the details of the problem and maintenance recommendations below and indicate the location deficiency on the site map on the next page.

Comment No.	Comment
1	None observed; however, could not inspect 50% of cover due to heavy vegetation.
2	Sloughing observed mainly due to FDOT traffic.
3	High dense grass growing along majority of site boundary.
4.	Hole in fence in northwest section near MW-6A (vandalism)
5	Southwest gate at NW 109th Street pushed down.
6	Same as Comment No. 5. Fence gate damaged but no unauthorized entry observed due to high dense grass.

Comment No.	Corrective Action Performed

Signature of Observer: Ralph P. Mitchum Date: 12/9/92

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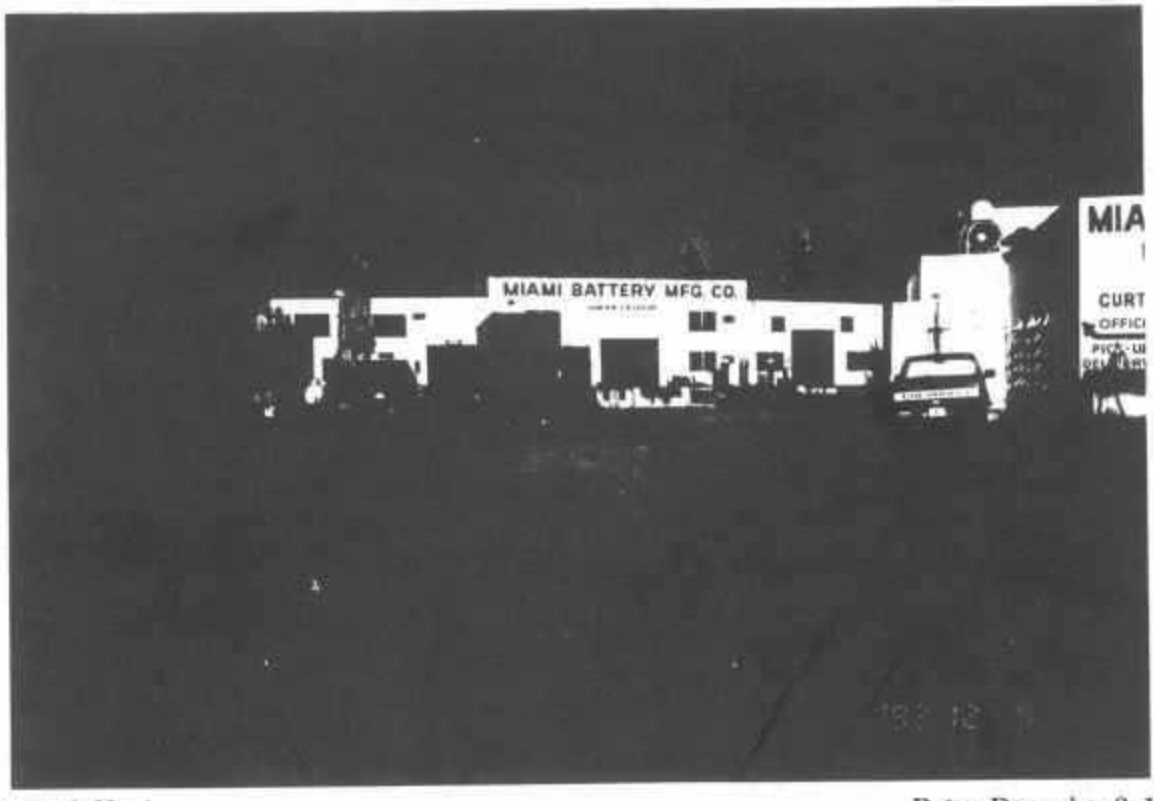
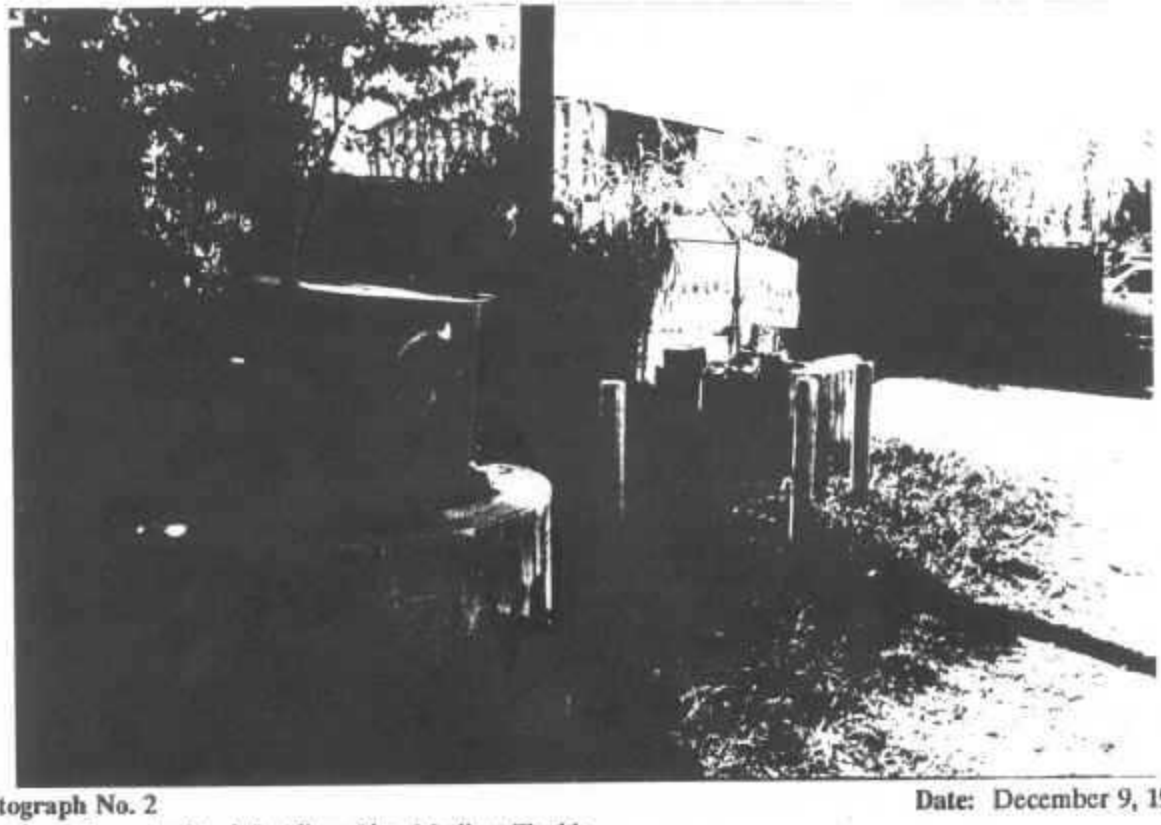
APPENDIX B

PHOTOGRAPHS

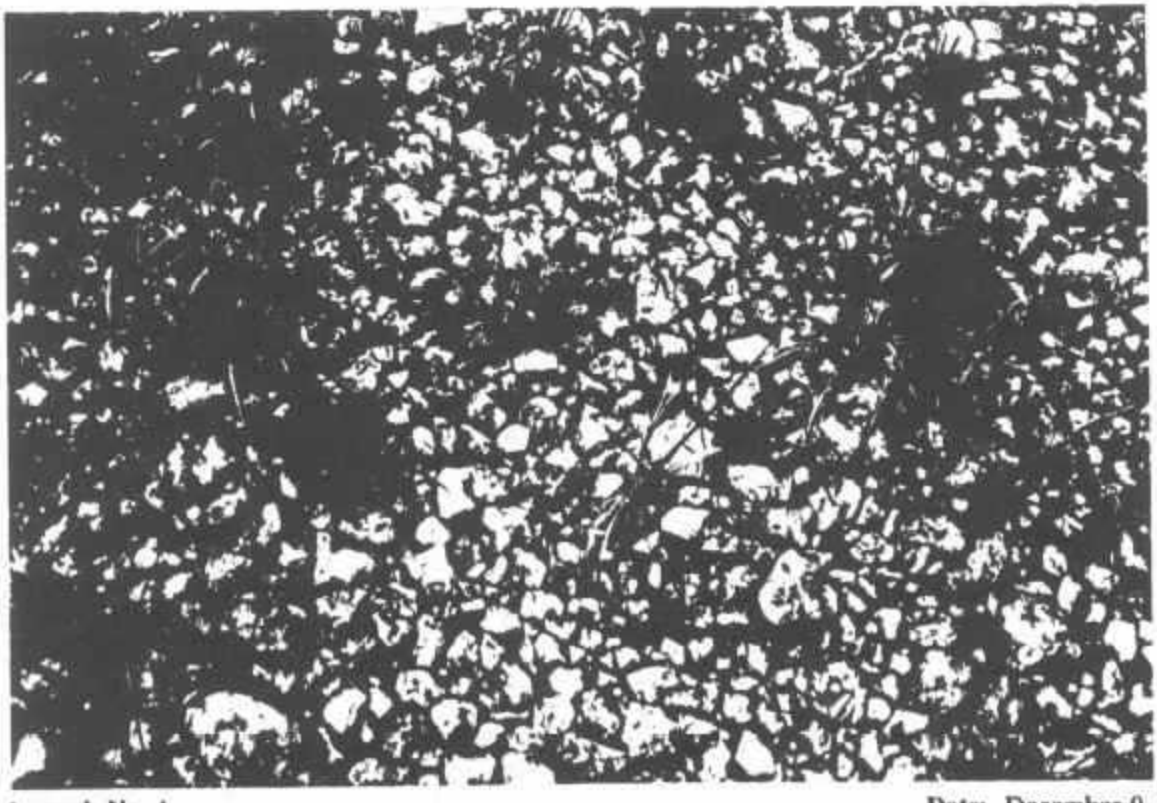


Photograph No. 1 **Date:** December 9, 1992
Location: Pepper's Steel & Alloys Site, Medley, Florida
Description: View of Miami Battery Warehouse. Remediation area and monolith located to the left.

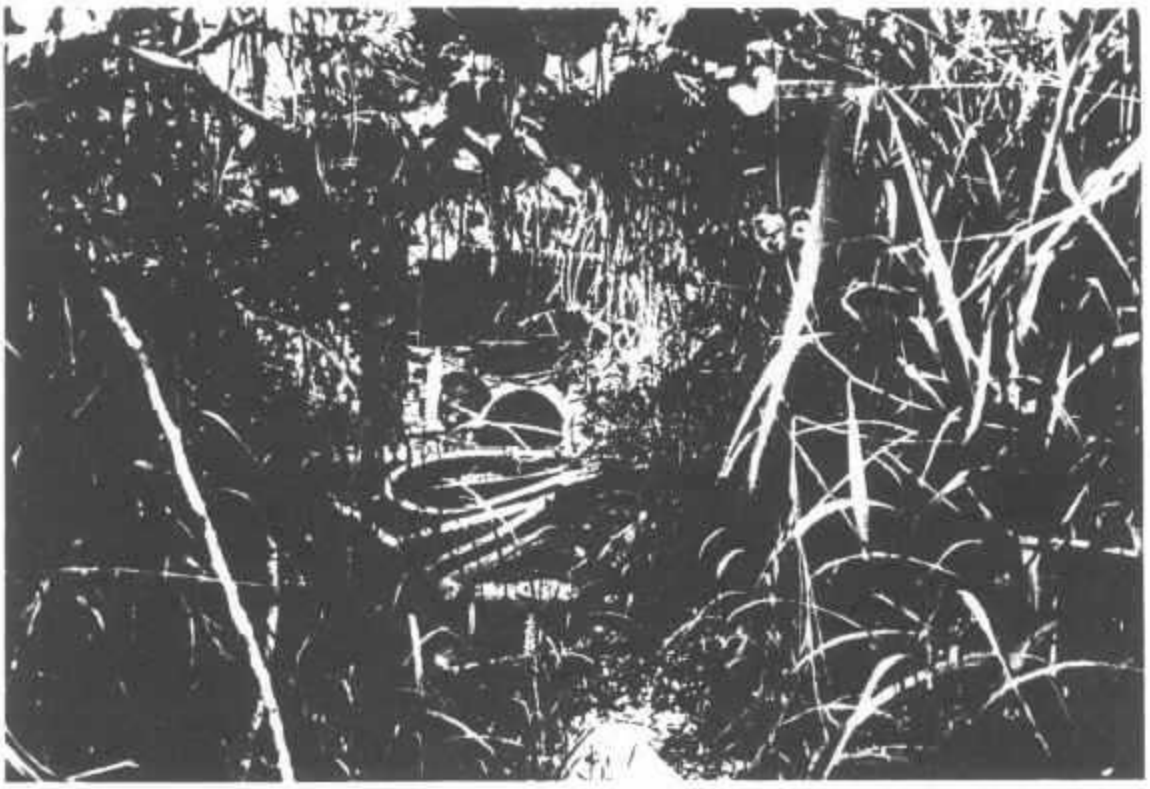


Photograph No. 2 **Date:** December 9, 1992
Location: Pepper's Steel & Alloys Site, Medley, Florida
Description: Groundwater sampling of monitoring wells 6A and 6B.

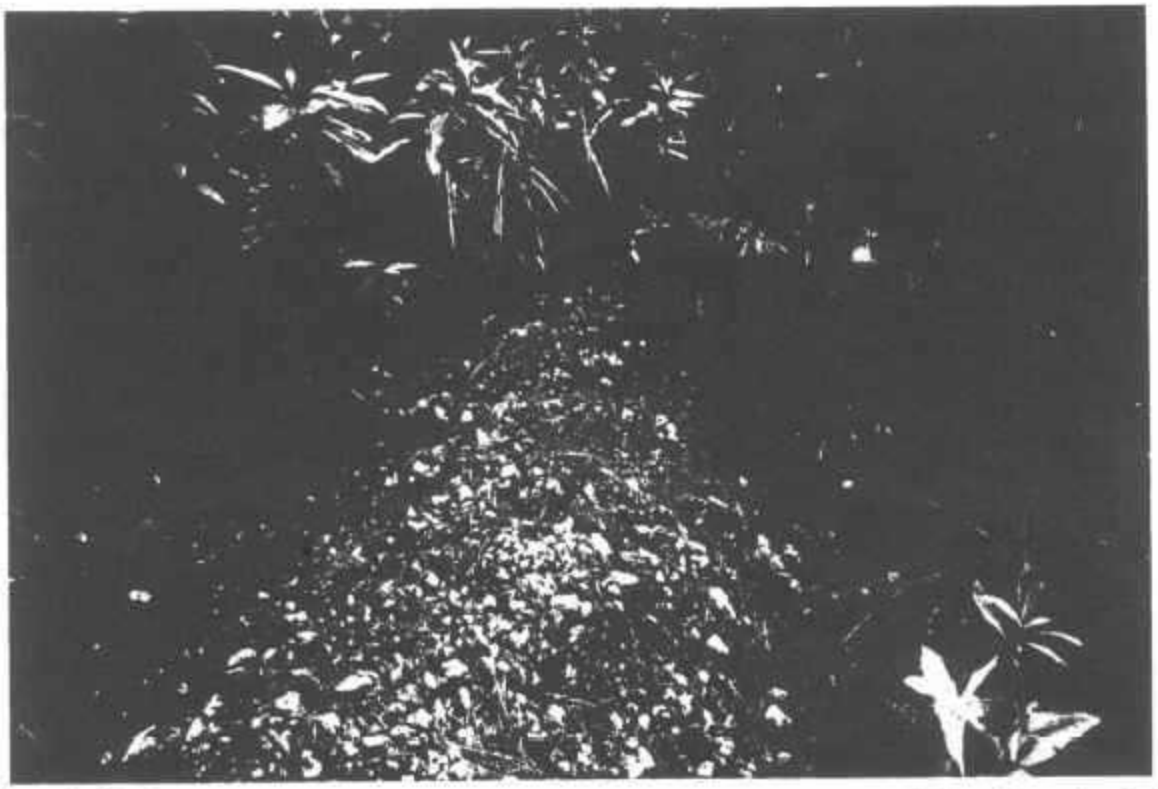
Photograph No. 3 **Date:** December 9, 1992
Location: Pepper's Steel & Alloys Site, Medley, Florida
Description: Typical view of the surface monolith cover.



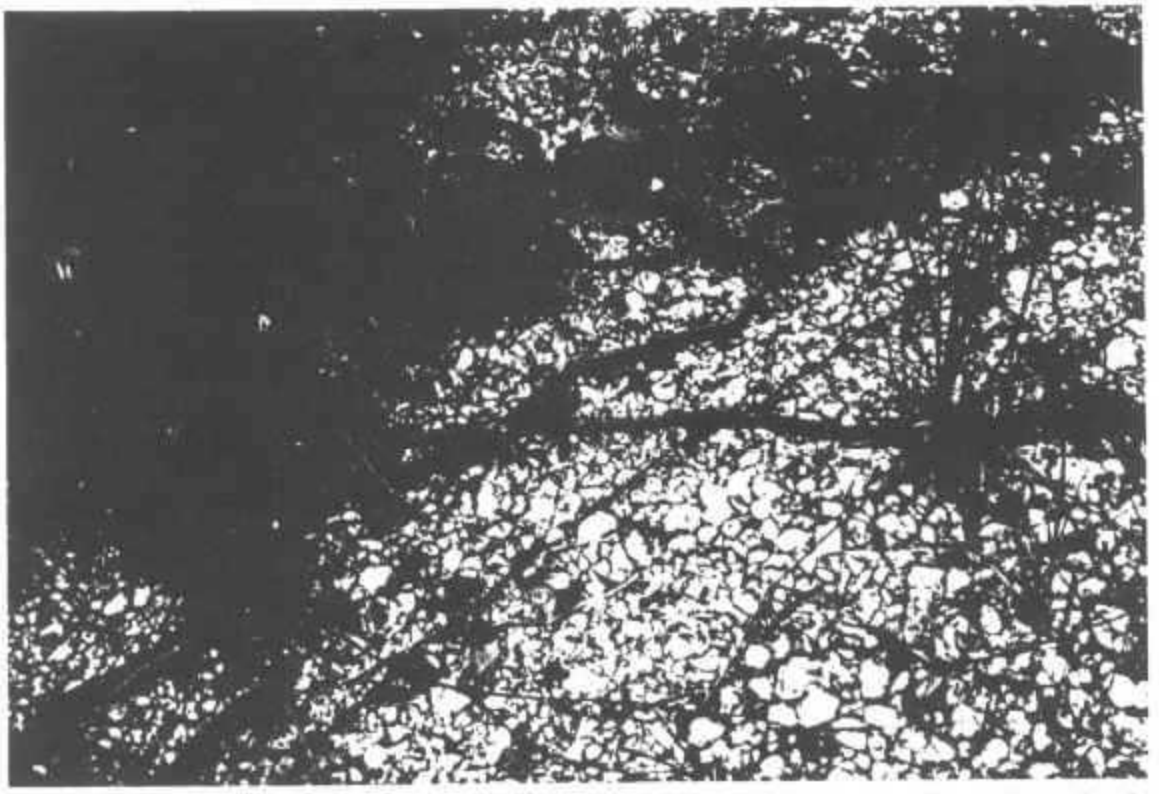
Photograph No. 4 **Date:** December 9, 1992
Location: Pepper's Steel & Alloys Site, Medley, Florida
Description: Close-up of the limestone rock cover on the monolith.



Photograph No. 5 **Date:** December 9, 1992
Location: Pepper's Steel & Alloys Site, Medley, Florida
Description: Hole in the northwest section of the chain link fence. Path leading to local trucking company.



Photograph No. 6 **Date:** December 9, 1992
Location: Pepper's Steel & Alloys Site, Medley, Florida
Description: View of the drainage collar.

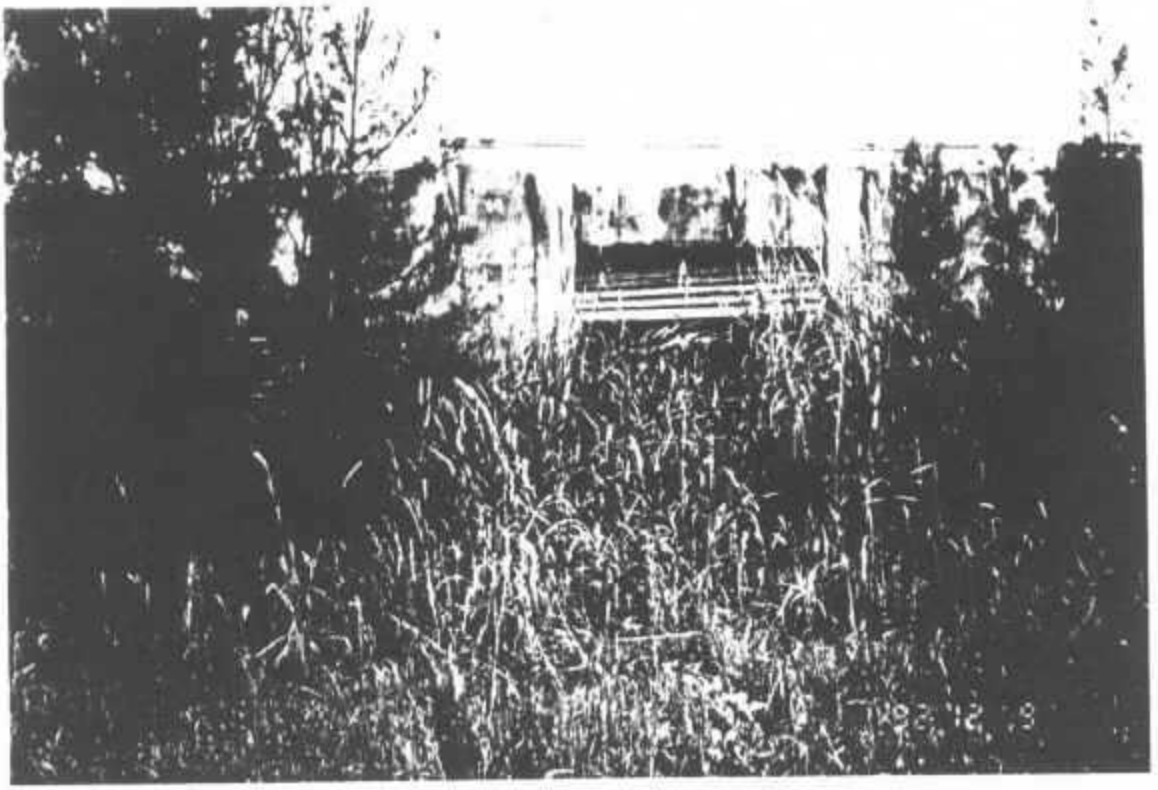


Photograph No. 7 **Date:** December 9, 1992
Location: Pepper's Steel & Alloys Site, Medley, Florida
Description: Vegetation and root systems growing on the monolith cover.

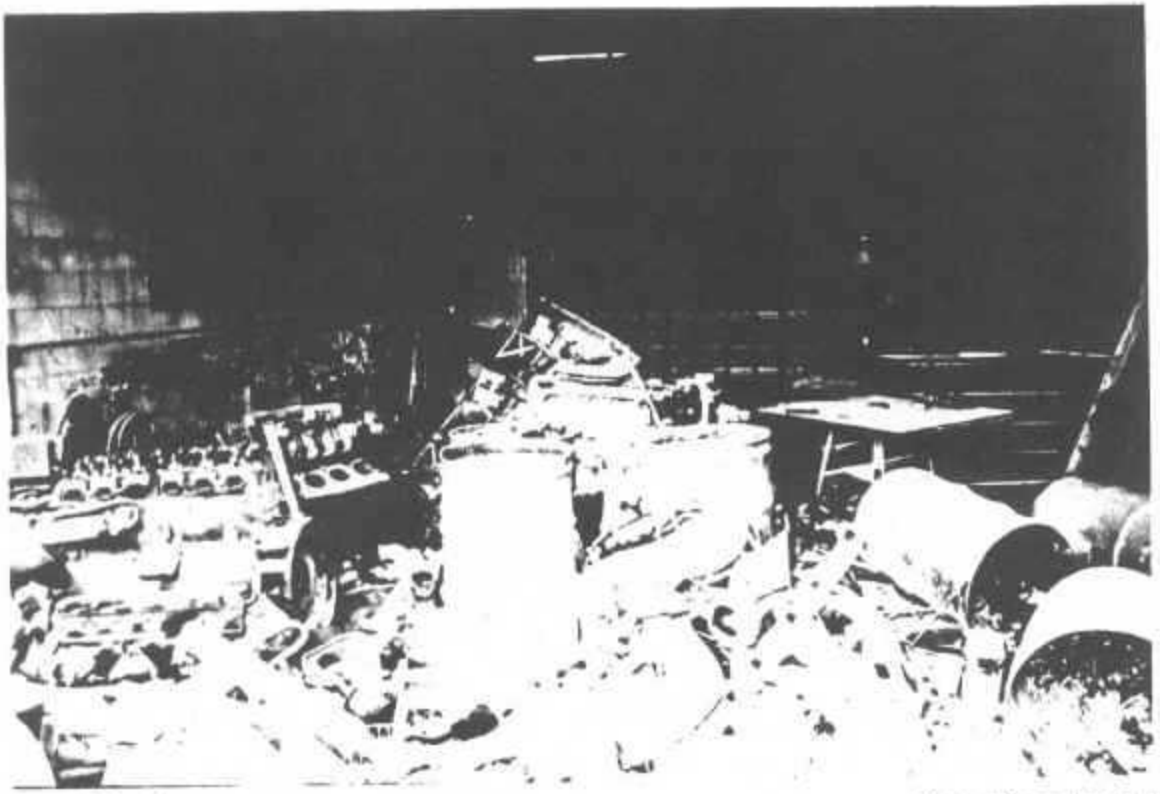
Photograph No. 8 **Date:** December 9, 1992
Location: Pepper's Steel & Alloys Site, Medley, Florida
Description: Dense, high grass along west and north property boundaries prevented visual inspection of fence line and drainage collar.

Photograph No. 9 **Date:** December 9, 1992
Location: Pepper's Steel & Alloys Site, Medley, Florida
Description: Drainage collar covered with grass.

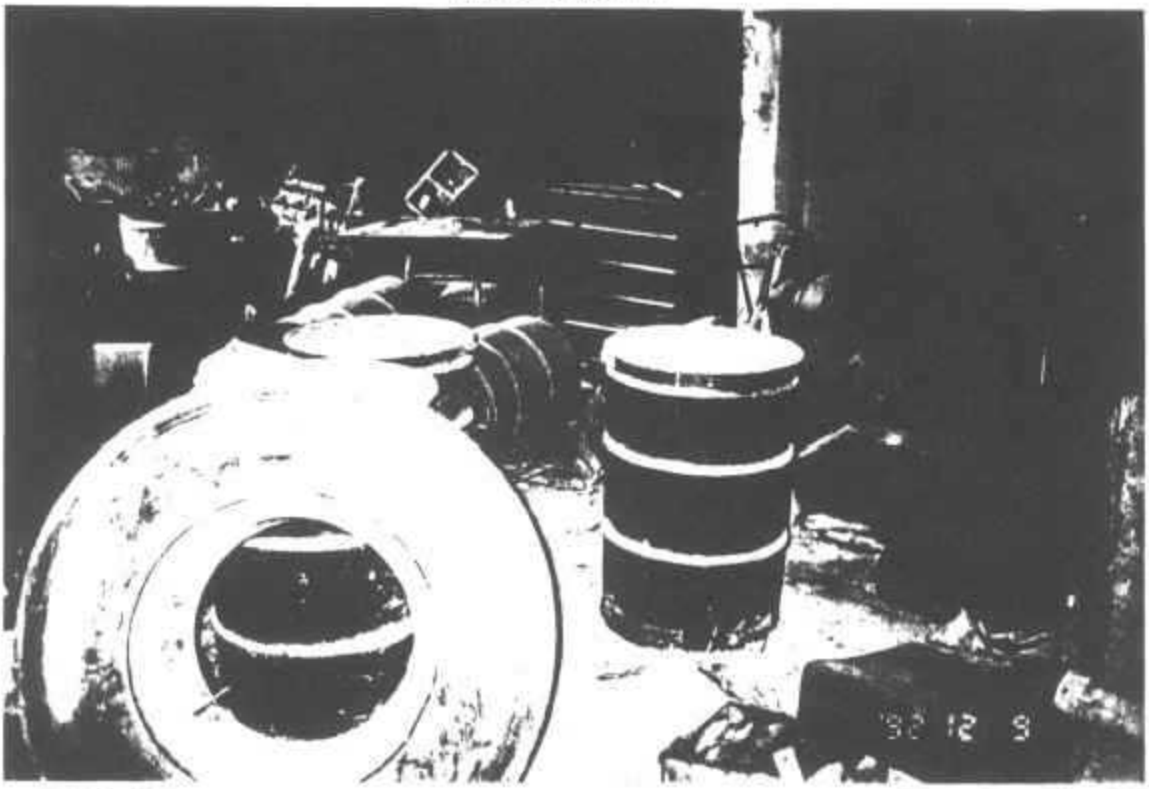
Photograph No. 10 **Date:** December 9, 1992
Location: Pepper's Steel & Alloys Site, Medley, Florida
Description: Tree pushed over by high winds exposing shallow root system.



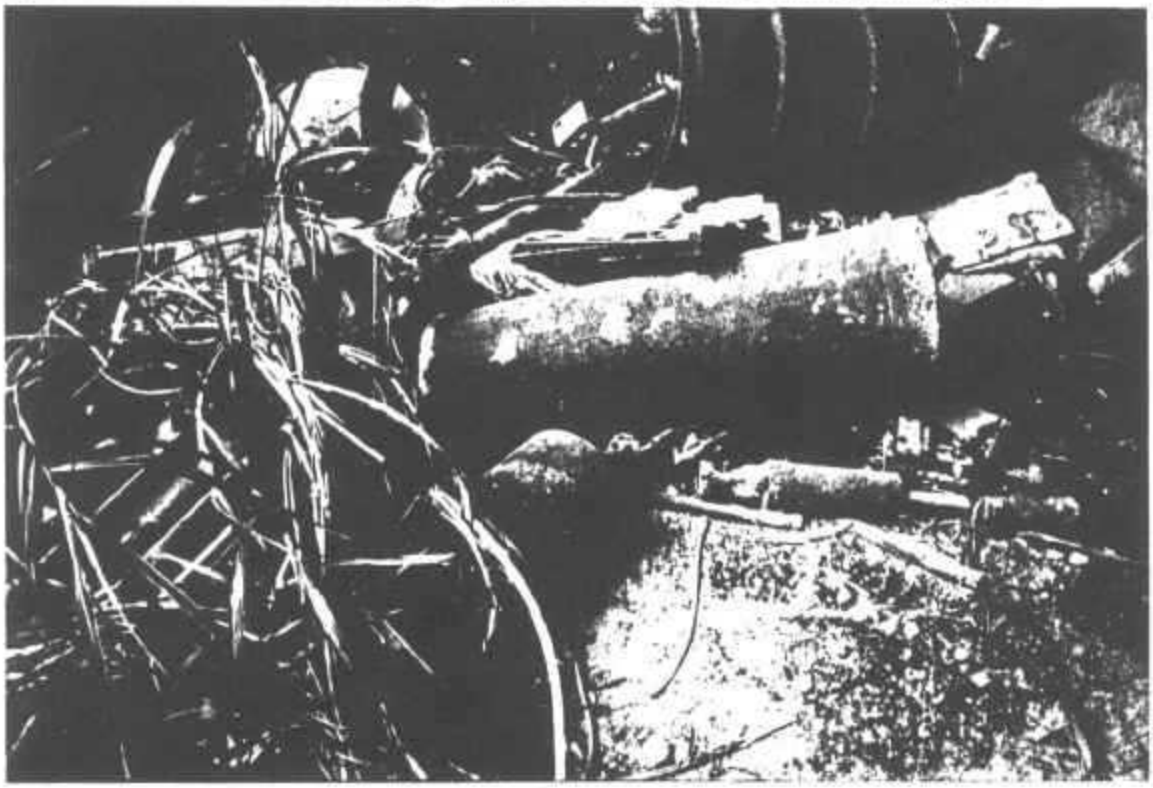
Photograph No. 11 **Date:** December 9, 1992
Location: Pepper's Steel & Alloys Site, Medley, Florida
Description: Abandoned Jim Woods building located on the southeast side of the monolith.



Photograph No. 12 **Date:** December 9, 1992
Location: Pepper's Steel & Alloys Site, Medley, Florida
Description: Inside Jim Woods building showing old truck and engine parts.



Photograph No. 13 **Date:** December 9, 1992
Location: Pepper's Steel & Alloys Site, Medley, Florida
Description: Inside Jim Woods building showing unlabelled 55-gallon drums containing liquids.



Photograph No. 14 **Date:** December 9, 1992
Location: Pepper's Steel & Alloys Site, Medley, Florida
Description: Inside Jim Woods Building showing numerous gas cylinders strewn about.

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APPENDIX C

GROUNDWATER SAMPLING PLAN

Document Control No. 4400-20-ACJN

Revision 1

GROUNDWATER SAMPLING PLAN

FIVE-YEAR REVIEW
PROJECT ASSISTANCE

PEPPER'S STEEL AND ALLOYS, INC. SITE
MEDLEY, DADE COUNTY, FLORIDA

Work Assignment No. 20-4S80

December 4, 1992

REGION IV

U.S. EPA CONTRACT NO. 68-W9-0057

Roy F. Weston, Inc.
1880-H Beaver Ridge Circle
Norcross, Georgia 30071

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INTRODUCTION

The Pepper's Steel and Alloys, Inc. (Pepper's Steel) Site was added to the National Priorities List in September 1983 following a site investigation by EPA and NUS Corporation. The investigation revealed PCB contaminated soils which prompted EPA to perform an immediate removal action of these soils. Following a Remedial Investigation/Feasibility Study, an Enforcement Decision Document (equivalent to a ROD) was issued to the PRPs by the EPA Regional Administrator to perform remedial actions. These actions commenced in March, 1987 and concluded in January, 1989.

Consistent with CERCLA as amended by SARA, section 121(c), Section 300.430(f)(4)(ii) of the National Oil and Hazardous Substances Pollution Contingency Plan, a statutory five-year review to evaluate the effective of the remedial actions is required for this site. EPA Region IV has decided that a Level I analysis is appropriate for the Pepper's Steel Site. A Level I analysis is the lowest level of evaluation of protectiveness as defined in OSWER Directive 9355.7-02, Structure and Components of Five-Year Reviews.

SITE LOCATION AND DESCRIPTION

The Pepper's Steel Site is located approximately 10 miles northwest of Miami in the town of Medley, Florida (See Figure 1). The site encompasses 30 acres.

The site has been used by several businesses which have conducted a variety of operations. Some of these operations included battery manufacturing, fiberglass boat manufacturing, and the construction of pre-cast concrete products. Repair services for trucks and heavy equipment as well as automobile scrap operations have been performed at the site.

Topographically, the site is flat consisting of a solidified matrix and clean soil fill overlain with crushed limestone. The monolith is crowned near the center and sloped at 2% to perimeter drainage ditches. Three different depth zones of groundwater flow have been identified for post-remediation monitoring. The depths of these zones are 15 feet, 25 feet, and 50 feet below land surface and are labeled as Zones A, B, C, respectively.

SITE HISTORY

The Dade County Department of Environmental Management (DERM) was the first regulatory agency to investigate the site. This investigation was performed in 1978 following a citation issued to Pepper's Steel. The investigation included sampling and evaluation of groundwater

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wells in the area. The next action at the site was performed in 1982 when DERM excavated test pits at the site and discovered PCB contamination in the shallow subsurface materials.

In 1983, the U.S. Environmental Protection Agency (EPA) performed a site investigation. The results of the investigation showed that significant threats were present which prompted an immediate removal action by the EPA in 1983. Documentation of these removal actions have not been provided to WESTON. The site was subsequently placed on the National Priorities List in late 1983.

The EPA commenced a Remedial Investigation/Feasibility Study (RI/FS) in early 1984. Contaminants identified included PCBs, organic compounds, and heavy metals. These contaminates were found in soil, sediments, and the groundwater. PCB contaminated oil was discovered to be floating on top of the groundwater. During the EPA RI/FS process, the PRPs identified by the EPA proposed a conceptual remedial action for the site.

On March 12, 1986, the EPA Regional Administrator approved an Enforcement Decision Document which outlined the selected remedial alternative. The PRPs retained the services of an environmental contractor to perform the remedial design. The remedial design for the soil cleanup activities was completed in August, 1986 while the remedial design for groundwater monitoring was not completed until January, 1987.

Remedial actions commenced in March, 1987 and was completed in January, 1989. On January 12, 1989, the EPA conducted a final inspection with the State, County, and PRP representatives to evaluate the remediation efforts by the PRPs. At this time it was determined that the requirements set forth in the EDD had been successfully executed. The PRPs submitted a Final Remedial Action Report on June 26, 1989. Subsequently, the EPA notified the PRPs that they had adequately completed the construction of the remedy as described in the Remedial Action Work Plan.

DESCRIPTION OF THE REMEDIAL ACTIONS

Initially, a chain link security fence was installed around the perimeter of the site to restrict access. At this time, the condition of the fence is not known since there are no O&M reports.

Contaminated soils exceeding 1 ppm PCBs, 1,000 ppm lead, and 5 ppm arseni were excavated and stockpiled. The excavated materials were screened then processed with a cement-fly ash binder. The solidified/stabilized soils were then placed back into the original excavation areas. The solidified monoliths were then capped with a 12 inch layer of crushed limestone to protect it from vehicular traffic and acid rain. Approximately 90,000 cubic yards of contaminated soil

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was processed. Perimeter groundwater monitoring wells and monolith wells were installed for post-remediation monitoring.

OBJECTIVE

The objective of this sampling plan is to detail the procedures WESTON will follow in obtaining split groundwater samples from the PRP contractor. This plan will also describe proper collection techniques to be followed by the PRP. At all times WESTON will note any deviations of the PRP contractor.

The data will be utilized in the evaluation process to determine if the contaminants of concern within the solidified matrix are impacting the shallow and deep groundwater systems in the area.

SAMPLING ACTIVITIES

WESTON will split groundwater samples with the PRP contractor, GeoTrans, Inc. These samples will be sent the EPA Environmental Services Division Laboratory in Athens, Georgia or a participating CLP Lab. A site health & safety plan (HASP) for field activities has been prepared in accordance with WESTON's health & safety requirements. The HASP will be followed by all WESTON personnel on site. While on site, WESTON personnel will also adhere to the PRP contractor's safety plan to the extent that it does not conflict with the WESTON plan.

WESTON will collect seven split samples from the PRP contractor. These samples will be obtained and handled in conformance with the US-EPA, Region IV, Environmental Compliance Branch Standard Operating Procedures and Quality Assurance Manual, (ECBSOPQAM) February 1, 1991. A copy of this manual will be available on site for reference during all sampling activities. The field procedures for collection of the split samples is as follows:

SAMPLE LOCATIONS - The seven sample locations will represent the following well categories: 1) monolith wells; 2) zone A; 3) zone B; and 4) zone C. The RPM and WESTON have selected the following wells: MO-1, MO-2, MO-3, MW-6A, -6B, -6CR, and MW-9A. This selection was based upon relative location with respect to the monoliths and the preferential groundwater flow direction which is from south to north (see Figure 2 for locations of split sample locations).

FIELD SAFETY - The WESTON HASP will be followed during all sampling activities.

EQUIPMENT - 1-gallon amber glass jugs

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1-liter polyethylene containers
pH meter
Water level indicator
Thermometer
Conductivity Meter
Peristaltic Pump
Teflon tubing

GeoTrans will perform decontamination prior to mobilizing to the site and will have sufficient amount of Teflon tubing to dedicate for each well. The water level indicator will require decontamination between wells. This will consist of a wash with Liquinox detergent followed by a rinse with deionized water.

PRESERVATIVE -

Metal Analysis - 1 liter polyethylene - 50% nitric acid to maintain a pH of less than 2.0, and cooled with ice.

PCB Analysis - 1 gallon amber glass - cooled with ice. An additional 1 gallon sample volume will be obtained from one of the samples for laboratory duplicate analysis.

WELL PURGING - Wells will be purged prior to taking samples in order to clear the well of stagnant water which is not representative of aquifer conditions. Three to fives times the volume of standing water in the well will be removed from the well. The calculation for determining the volume of standing water in the well is as follows:

$$\mathbf{V = 0.041\ d^2h}$$

V = volume of water (gallons)
h = depth of water (feet) Determined with graduated water level indicator.
d = inside diameter of well casing (inches)

In addition, the specific conductance, temperature, and pH will be monitored until these parameters stabilize (< 10% change). If the well is bailed or pumped dry, this constitutes an adequate purge and the well can be sampled following recovery. Sampling will be performed with the Peristaltic pump equipped with a 250 ml Teflon trap. Split samples will be alternately collected from this 250 ml reservoir. Each time the 250 ml reservoir is filled, it will be split between the two containers until the necessary volume is obtained.

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QUALITY CONTROL - Once the sample is obtained by WESTON, Chain-of-Custody procedures will be used to maintain and document sample possession. The following documents will be used to identify and document the samples.

1) Sample Tags - The sample tag will be securely attached to each sample to identify the type of sample. Recorded information on the tag will include: sample number, project code, station number, samplers names, tag number, preservative (if any), and type of analysis to be performed. WESTON will employ the same labelling system as the PRP contractor in identifying the samples.

2) Custody Seals - A signed and dated custody seal will be placed over the top of each sample container once it has been filled.

3) Chain-of-Custody Record - WESTON will complete a Chain-of-Custody record for each shipment of samples to ESD or participating CLP lab. After the form is properly completed, the WESTON representative will retain one copy. The originals will be placed in a plastic bag and taped to the inside lid of the shipping container.

4) Shipping Procedures - These samples are not expected to be contaminated with high levels of hazardous materials; therefore, they will be shipped as environmental samples. The amount of nitric acid preservative will be monitored for dangerous goods classification by IATA regulations.

5) Site Log - WESTON will record the sampling procedures and locations in the site log and document any deviations from the EPA-ESD protocols.

BLANK/SPIKE SAMPLES - WESTON will obtain blank and spike samples from the ESD in Athens. These samples will only be needed if the analysis is being performed by a CLP laboratory. The samples will be packaged for shipment with the other samples and sent for analysis. WESTON will record the sample designation number for tracking.

EQUIPMENT BLANK - One equipment rinsate blank sample will be obtained from the pre-cleaned Teflon tubing. This sample will be collected by running organic-free water over the tubing.

The site visit will also include an inspection of the post remediation efforts to evaluate its effectiveness in protecting the environment an human health. Visual observations of the monolith cap for sign of deterioration. Each component of the EDD will be examined and recorded for compliance. WESTON will utilize the "Proposed Operations and Maintenance

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Plan" July 1989, prepared by the EPA Superfund Branch as a guideline for documenting all aspects of the field observations.

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APPENDIX D

WESTON'S VEGETATION ASSESSMENT REPORT

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PEPPER'S STEEL SITE
MEDLEY, FLORIDA
VEGETATION ASSESSMENT REPORT

Purpose/Scope of Work

The purpose of vegetation assessment activities conducted at the Pepper's Steel site was to address the EPA's concern regarding the possible physical degradation of the cement/pozzolanic monolith by the root systems of encroaching woody vegetation. In order to respond to this concern a two stage investigation was implemented. The first stage of the investigation involved undertaking a quantitative floristic inventory of the cap in order to more fully understand species composition and community structure. The second stage involved using the information collected in the field in an attempt to judge the potential of each woody taxon inventoried to cause harm. This evidence was acquired from a variety of sources including on-site observation, literature reviews, and contacts with individuals having expertise in plant root morphology.

Methods

On May 12-13, 1993 a WESTON botanist conducted a field investigation of the 45 acre Pepper's Steel site in Medley, Florida. Prior to initiating quantitative inventories, a site reconnaissance was undertaken to locate site boundaries, occurrence and extent of major community types, surface water and associated drainage patterns, and substrate availability. Oblique aerial photographs and fine-scale projects maps were used to supplement this effort.

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Quantitative surveys involved the installation of 20, 10 foot radius fixed area plots in a systematic random array. This was equivalent to an approximate 200 x 200 foot spacing. A more intensive sampling scheme was not instituted because of the extremely homogeneous nature of the plant community present on the cap. At each plot location, trees, saplings, shrubs, and woody vines greater than 4.5 feet tall were counted and the percent areal cover occupied by each was subjectively estimated. Within the same sampling unit, coverage estimates were made for each identifiable woody and non-woody taxon less than 4.5 feet tall.

Additionally, size structure of dominant arborescent elements was gauged by assessing height and diameter ranges.

Information on root morphology and substrate penetration was gained from a variety of sources. This included direct on-site observation of the exposed root systems of trees blown over during hurricane Andrew along with excavation of root systems of intact stems. Supplementary data was obtained from regional floristic manuals and phone interviews with staff members at the University of Tennessee Departments of Botany and Ornamental Horticulture, University of Florida Forestry Extension Service, and the Dade County, Florida Office of Environmental Resources.

Results

Vegetation at the site is characteristic of an early successional type. Over the four years since completion of remediation activities, the area has been colonized by a combination of native and exotic species adapted to growing in open xeric situations (Table 1). By far the most dominant of these is the exotic Australian-pine. Quantitative inventories indicate that Australian-pine tree

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Table 1

Pepper's Steel Site
Comprehensive Vegetation Summary

Common Name	Scientific Name	Life Form	Rooting Habit	Average Density[A] (stems/acre)	Average Cover[3] (%)	Average Frequency (%)
Australian-pine	*Casuarina equisetifolia*	Tree		1,457.17	30.45	100
Cajeput tree	*Melaleuca quinquenervia*	Tree	Diffuse Surficial		0.05	5
Jamaican-cherry	*Muntingia calabura*	Tree	Diffuse		0.10	10
Brazilian pepper tree	*Schinus terebinthifolius*	Tree	Diffuse	14.29	0.40	15
Groundsel tree	*Baccharis glomeruliflora*	Shrub	Diffuse		0.20	20
Sea ox-eye	*Borrichia frutescens*	Shrub	Diffuse rhizomatous		0.05	5
Mexican marsh-fleabane	*Pluchea symphytifolia*	Shrub	Diffuse surficial	164.29	4.75	65
Borreria	*Borreria verticillata*	Sub-shrub	Diffuse		0.90	60
Common cissus	*Cissus sicyoides*	Vine	Diffuse	7.14	0.15	5
Common ragweed	*Ambrosia artemisiifolia*	Herb	Diffuse		0.05	5
Nodding spurge	*Chamaesyce nutans*	Herb	Diffuse		0.05	5

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Table 1 (Continued)

Pepper's Steel Site
Comprehensive Vegetation Summary

Common Name	Scientific Name	Life Form	Rooting Habit	Average Density[A] (stems/acre)	Average Cover[3] (%)	Average Frequency (%)
Tassel flower	*Emilia fosbergerii*	Herb	Taprooted		0.05	5
Camphor weed	*Heterotheca subaxillaris*	Herb	Taprooted		0.20	10
Creeping tridax	*Tridax procumbens*	Herb	Taprooted		0.15	10
Beard grass[C]	*Andropogon longiberbis*	Grass	Diffuse rhizomatous		7.50	100
Finger grass	*Eustachys petraea*	Grass	Diffuse stoloniferous		0.20	15
Silk reed	*Neyraudia reynaudiana*	Grass	Diffuse		4.55	100
Napier grass	*Pennisetum purpureum*	Grass	Diffuse		0.55	20
Chinese ladder brake	*Pteris vittata*	Fern	Diffuse rhizomatous		2.05	60
TOTALS				**1,642.89**	**52.40 (47.6% bareground)**	

A. Calculated for woody stems greater than 4.5 feet tall only.
B. Includes pooled cover estimates for woody stems greater than and less than 4.5 feet tall.
C. Tentative identification based on sterile material.

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saplings currently occur at densities of 1,457 per acre. This translates to a total population estimate of 65,572 stems. In terms of areal coverage, Australian-pine is also by far and away the most successful species capturing slightly more than 30 percent of the site area. While this tree was inventoried at all sampling locations, greatest density and development occurred in the vicinity of the perimeter drainage ditch. Here stems ranged from 4 to 6 inches in diameter at breast height (dbh) and attained maximum heights approaching 40 feet. Tree-size individuals elsewhere on the cap rarely exceeded 20 feet tall or 3 inches dbh. This disparity in dimension can most likely attributed to a more favorable moisture regime at the perimeter locations.

Additional woody and non-woody species which also appear to be established, though to a far lesser degree than Australian-pine, include beard grass (7.50 percent cover), Mexican marsh-fleabane (4.75 percent cover, 164.29 stems/acre), silk reed (4.55 percent cover), and Chinese ladder brake (2.05 percent cover). Of these only beard grass is native to south Florida. Silk reed and marsh-fleabane, like the Australian-pine, tended to do better in areas with greater moisture availability while beard grass and Chinese ladder brake captured the driest sites such as those along the center line of the cap.

Direct observation of the root systems of all species occurring on-site, along with personal communications and literature reviews suggests the presence of two primary morphological types, diffuse (fibrous) roots and taproots. Diffuse roots which tend to occupy upper surface layers but which may also be extensive and complex, are characteristic in 16 of the 19 taxa observed. Several of these species also produce underground to sub-surficial shoots (stolons) or stems (rhizomes) which serve as a means of asexual reproduction. Taprooted forms, exemplified by a single vertically oriented primary root that may penetrate to great depth, were food in three short lived herbaceous members of the Aster family.

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Discussion and Recommendations

At the current time it does not appear that the integrity of the cement/pozzolanic monolith is threatened by the encroachment of woody and herbaceous vegetation. Australian-pine, the species of primary concern, is a very shallow rooted tree that is unlikely capable of causing short-term physical damage to an intact structure that is reported to have a penetration resistance of at least 500 psi. Direct observations made by the WESTON botanist indicate the roots associated with the largest trees fully occupy the crushed limestone layer beneath but then move horizontally taking the path of least resistance across the upper surface of the hardened monolith.

Predicting the longer term influence of vegetation cover is far less certain. Several intervening factors, however, will come into play which may have negative consequences. For example, with the passage of time, plant detritus and weathered limestone and shell material will form into a soil layer. Root nodules associated with Australian-pine that are capable of fixing atmospheric nitrogen will add nitrate amenities to this soil and perhaps make the site more suitable for habitation by a wider range of plant species. Given the large number of native and escaped exotic ornamental species in the south Florida region, composition over time is difficult to predict. Undoubtedly a percentage of this future assemblage will contain entities featuring rooting habits more invasive than those of Australian-pine. It would also appear likely that the monolith itself will, over time, develop fissures as the result of natural processes such as differential settling, weather induced expansion and contraction, geologic forces, etc. Such fissures will offer root expansion pathways even to shallow rooted plant species. Intervening root growth and exudation of organic acids from these roots will almost assuredly induce additional matrix fissuring and surface area exposure.

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Although there appear to be no immediate vegetation related threats to the Pepper Steel monolith, plant root invasion will only serve to exacerbate natural fissuring processes. While complete woody vegetation removal is not warranted at this time, it would be prudent to institute procedures to monitor the integrity of the monolith on a periodic basis. Personnel involved in such activities should include engineers familiar with the affect of increased surface area exposure and weathering on the potential release of contaminants from pozzolanic grout matrices.

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APPENDIX E

ANALYTICAL RESULTS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV
COLLEGE STATION RD.
ATHENS, GA. 30613

12-1-92

*****MEMORANDUM******

DATE: 01/15/93

SUBJECT: Results of Metals Analysis;
93-0145 PEPPERS STEEL & ALLO
MEDLEY FL

FROM: Mike Wasko, Chemist

TO: WADE KNIGHT

THRU: William H. McDaniel
Chief, Inorganic Chemistry Section

Attached are the results of analysis of samples collected as part of the subject project.

If you have any questions please contact me.

ATTACHMENT

JAN 19 1993

METALS DATA REPORT

PROJECT NO. 93-0145 SAMPLE NO. 73486 SAMPLE TYPE: GROUNDWA PROG ELEM: SSF COLLECTED BY: R MCKEEN
SOURCE: PEPPERS STEEL & ALLO CITY: MEDLEY ST: FL
STATION ID: MW– 9A COLLECTION START: 12/08/92 0910 STOP: 00/00/00

UG/L	ANALYTICAL RESULTS	MG/L	ANALYTICAL RESULTS
10U	SILVER	74	CALCIUM
30U	ARSENIC	5.8	MAGNESIUM
NA	BORON	0.082	IRON
32	BARIUM	27	SODIUM
5.0U	BERYLLIUM	3.6	POTASSIUM
5.0U	CADMIUM		
10U	COBALT		
10U	CHROMIUM		
10U	COPPER		
10U	MOLYBDENUM		
20U	NICKEL		
5.0U	LEAD		
30U	ANTIMONY		
40U	SELENIUM		
25U	TIN		
660	STRONTIUM		
50U	TELLURIUM		
10U	TITANIUM		
100U	THALLIUM		
10U	VANADIUM		
10U	YTTRIUM		
10U	ZINC		
NA	ZIRCONIUM		
0.2U	MERCURY		
100U	ALUMINUM		
16	MANGANESE		

REMARKS ***REMARKS***

* * * FOOTNOTES * * *
*A– AVERAGE VALUE *NA– NOT ANALYZED *NAI– INTERFERENCES *J– ESTIMATED VALUE *N– PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K– ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L– ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U– MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT.

METALS DATA REPORT

* * PROJECT NO. 93-0145 SAMPLE NO. 73487 SAMPLE TYPE: GROUNDWA PROG ELEM: SSF COLLECTED BY: R MCKEEN * *
* * SOURCE: PEPPERS STEEL & ALLO CITY: MEDLEY ST: FL * *
* * STATION ID: MO-2 COLLECTION START: 12/08/92 1130 STOP: 00/00/00 * *

UG/L	ANALYTICAL RESULTS	MG/L	ANALYTICAL RESULTS
10U	SILVER	69	CALCIUM
30U	ARSENIC	5.9	MAGNESIUM
NA	BORON	0.15	IRON
30	BARIUM	36	SODIUM
5.0U	BERYLLIUM	15	POTASSIUM
5.0U	CADMIUM		
10U	COBALT		
10U	CHROMIUM		
10U	COPPER		
18	MOLYBDENUM		
20U	NICKEL		
7.5	LEAD		
30U	ANTIMONY		
40U	SELENIUM		
25U	TIN		
670	STRONTIUM		
50U	TELLURIUM		
11	TITANIUM		
100U	THALLIUM		
10U	VANADIUM		
10U	YTTRIUM		
10U	ZINC		
NA	ZIRCONIUM		
0.2U	MERCURY		
410	ALUMINUM		
21	MANGANESE		

REMARKS* ***REMARKS***

* * * FOOTNOTES * * *
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METALS DATA REPORT

* * PROJECT NO. 93-0145 SAMPLE NO. 73488 SAMPLE TYPE: GROUNDWA PROG ELEM: SSF COLLECTED BY: R MCKEEN * *
* * SOURCE: PEPPERS STEEL & ALLO CITY: MEDLEY ST: FL * *
* * STATION ID: MW-6A COLLECTION START: 12/08/92 1445 STOP: 00/00/00 * *

UG/L	ANALYTICAL RESULTS	MG/L	ANALYTICAL RESULTS
10U	SILVER	97	CALCIUM
30U	ARSENIC	7.9	MAGNESIUM
NA	BORON	0.88	IRON
35	BARIUM	25	SODIUM
5.0U	BERYLLIUM	2.0U	POTASSIUM
5.0U	CADMIUM		
10U	COBALT		
10U	CHROMIUM		
10U	COPPER		
10U	MOLYBDENUM		
20U	NICKEL		
15	LEAD		
30U	ANTIMONY		
40U	SELENIUM		
25U	TIN		
860	STRONTIUM		
50U	TELLURIUM		
10U	TITANIUM		
100U	THALLIUM		
10U	VANADIUM		
10U	YTTRIUM		
2300	ZINC		
NA	ZIRCONIUM		
0.2U	MERCURY		
100U	ALUMINUM		
32	MANGANESE		

REMARKS ***REMARKS***

* * * FOOTNOTES * * *
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METALS DATA REPORT

PROJECT NO. 93-0145 SAMPLE NO. 73489 SAMPLE TYPE: GROUNDWA PROG ELEM: SSF COLLECTED BY: R MCKEEN
SOURCE: PEPPERS STEEL & ALLO CITY: MEDLEY ST: FL
STATION ID: MW–6CR COLLECTION START: 12/08/92 1535 STOP: 00/00/00

UG/L	ANALYTICAL RESULTS
10U	SILVER
30U	ARSENIC
NA	BORON
40	BARIUM
5.0U	BERYLLIUM
5.0U	CADMIUM
10U	COBALT
10U	CHROMIUM
10U	COPPER
10U	MOLYBDENUM
20U	NICKEL
5.0U	LEAD
30U	ANTIMONY
40U	SELENIUM
25U	TIN
820	STRONTIUM
50U	TELLURIUM
10U	TITANIUM
100U	THALLIUM
10U	VANADIUM
10U	YTTRIUM
10U	ZINC
NA	ZIRCONIUM
0.2U	MERCURY
100U	ALUMINUM
41	MANGANESE

MG/L	ANALYTICAL RESULTS
85	CALCIUM
7.1	MAGNESIUM
1.1	IRON
27	SODIUM
2.0U	POTASSIUM

REMARKS

REMARKS

* * * FOOTNOTES * * *
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METALS DATA REPORT

PROJECT NO. 93-0145 SAMPLE NO. 73490 SAMPLE TYPE: GROUNDWA PROG ELEM: SSF COLLECTED BY: R MCKEEN
SOURCE: PEPPERS STEEL & ALLO CITY: MEDLEY ST: FL
STATION ID: EB-1 COLLECTION START: 12/09/92 0745 STOP: 00/00/00

UG/L	ANALYTICAL RESULTS	MG/L	ANALYTICAL RESULTS
10U	SILVER	0.50U	CALCIUM
30U	ARSENIC	0.10U	MAGNESIUM
NA	BORON	0.050U	IRON
10U	BARIUM	1.0U	SODIUM
5.0U	BERYLLIUM	2.0U	POTASSIUM
5.0U	CADMIUM		
10U	COBALT		
10U	CHROMIUM		
10U	COPPER		
10U	MOLYBDENUM		
20U	NICKEL		
5.0U	LEAD		
30U	ANTIMONY		
40U	SELENIUM		
25U	TIN		
10U	STRONTIUM		
50U	TELLURIUM		
10U	TITANIUM		
100U	THALLIUM		
10U	VANADIUM		
10U	YTTRIUM		
10U	ZINC		
NA	ZIRCONIUM		
0.2U	MERCURY		
100U	ALUMINUM		
10U	MANGANESE		

REMARKS ***REMARKS***

* * * FOOTNOTES * * *
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METALS DATA REPORT

* * PROJECT NO. 93-0145 SAMPLE NO. 73491 SAMPLE TYPE: GROUNDWA PROG ELEM: SSF COLLECTED BY: R MCKEEN * *
* * SOURCE: PEPPERS STEEL & ALLO CITY: MEDLEY ST: FL * *
* * STATION ID: MW–6B COLLECTION START: 12/09/92 1025 STOP: 00/00/00 * *

UG/L	ANALYTICAL RESULTS
10U	SILVER
30U	ARSENIC
NA	BORON
34	BARIUM
5.0U	BERYLLIUM
5.0U	CADMIUM
10U	COBALT
10U	CHROMIUM
10U	COPPER
10U	MOLYBDENUM
20U	NICKEL
5.4	LEAD
30U	ANTIMONY
40U	SELENIUM
25U	TIN
780	STRONTIUM
50U	TELLURIUM
10U	TITANIUM
100U	THALLIUM
10U	VANADIUM
10U	YTTRIUM
3400	ZINC
NA	ZIRCONIUM
0.2U	MERCURY
100U	ALUMINUM
17	MANGANESE

MG/L	ANALYTICAL RESULTS
86	CALCIUM
7.8	MAGNESIUM
0.34	IRON
26	SODIUM
2.0U	POTASSIUM

REMARKS

REMARKS

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METALS DATA REPORT

* * PROJECT NO. 93-0145 SAMPLE NO. 73492 SAMPLE TYPE: GROUNDWA PROG ELEM: SSF COLLECTED BY: R MCKEEN * *
* * SOURCE: PEPPERS STEEL & ALLO CITY: MEDLEY ST: FL * *
* * STATION ID: MO–3 COLLECTION START: 12/09/92 1330 STOP: 00/00/00 * *

UG/L	ANALYTICAL RESULTS	MG/L	ANALYTICAL RESULTS
10U	SILVER	71	CALCIUM
30U	ARSENIC	6.6	MAGNESIUM
NA	BORON	0.056	IRON
31	BARIUM	35	SODIUM
5.0U	BERYLLIUM	24	POTASSIUM
5.0U	CADMIUM		
10U	COBALT		
10U	CHROMIUM		
10U	COPPER		
14	MOLYBDENUM		
20U	NICKEL		
5.0U	LEAD		
30U	ANTIMONY		
40U	SELENIUM		
25U	TIN		
720	STRONTIUM		
50U	TELLURIUM		
10U	TITANIUM		
100U	THALLIUM		
10U	VANADIUM		
10U	YTTRIUM		
10U	ZINC		
NA	ZIRCONIUM		
0.2U	MERCURY		
270	ALUMINUM		
12	MANGANESE		

REMARKS ***REMARKS***

* * * FOOTNOTES * * *
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METALS DATA REPORT

*** ***

** PROJECT NO. 93-0145 SAMPLE NO. 73493 SAMPLE TYPE: GROUNDWA PROG ELEM: SSF COLLECTED BY: R MCKEEN **
** SOURCE: PEPPERS STEEL & ALLO CITY: MEDLEY ST: FL **
** STATION ID: MO–1 COLLECTION START: 12/09/92 1620 STOP: 00/00/00 **
** **

*** ***

UG/L	ANALYTICAL RESULTS	MG/L	ANALYTICAL RESULTS
10U	SILVER	70	CALCIUM
30U	ARSENIC	6.0	MAGNESIUM
NA	BORON	0.050U	IRON
22	BARIUM	59	SODIUM
5.0U	BERYLLIUM	91	POTASSIUM
5.0U	CADMIUM		
10U	COBALT		
10U	CHROMIUM		
10U	COPPER		
130	MOLYBDENUM		
260	NICKEL		
5.0U	LEAD		
30U	ANTIMONY		
40U	SELENIUM		
25U	TIN		
1200	STRONTIUM		
50U	TELLURIUM		
10U	TITANIUM		
100U	THALLIUM		
10U	VANADIUM		
10U	YTTRIUM		
10U	ZINC		
NA	ZIRCONIUM		
0.2U	MERCURY		
830	ALUMINUM		
10U	MANGANESE		

REMARKS ***REMARKS***

*** FOOTNOTES ***
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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV
COLLEGE STATION RD.
ATHENS, GA. 30613

*****MEMORANDUM *****

DATE: 01/30/93

SUBJECT: Results of Pesticide/PCB Analysis;
93-0145 PEPPERS STEEL & ALLO
MEDLEY FL

FROM: Lavon Revells, Chemist. HR

TO: WADE KNIGHT

THRU: Wade Knight
Chief, Organic Chemistry Section

Attached are the results of analysis of samples collected as part of the subject project.

If you have any questions please contact me.

ATTACHMENT

FEB 03 1993

PESTICIDES/PCB!S DATA REPORT

PROJECT NO. 93-0145 SAMPLE NO. 73486 SAMPLE TYPE: GROUNDWA PROG ELEM: SSF COLLECTED BY: R MCKEEN
SOURCE: PEPPERS STEEL & ALLO CITY: MEDLEY ST: FL
STATION ID: MW– 9A COLLECTION START: 12/08/92 0910 STOP: 00/00/00

UG/L	ANALYTICAL RESULTS	UG/L	ANALYTICAL RESULTS
NA	ALDRIN	1.2U	PCB–1232 (AROCLOR 1232)
NA	HEPTACHLOR	1.2U	PCB–1248 (AROCLOR 1248)
NA	HEPTACHLOR EPOXIDE	1.2U	PCB–1260 (AROCLOR 1260)
NA	ALPHA–BHC	1.2U	PCB–1016 (AROCLOR 1016)
NA	BETA–BHC	NA	TOXAPHENE
NA	GAMMA–BHC (LINDANE)	NA	CHLORDENE /2
NA	DELTA–BHC	NA	ALPHA–CHLORDENE /2
NA	ENDOSULFAN I (ALPHA)	NA	BETA CHLORDENE /2
NA	DIELDRIN	NA	GAMMA–CHLORDENE /2
NA	4,4' –DDT (P,P'–DDT)		GAMMA–CHLORDANE /2
NA	4,4' –DDE (P,P'–DDE)	NA	TRANS–NONACHLOR /2
NA	4,4' –DDD (P,P'–DDD)	NA	ALPHA–CHLORDANE /2
NA	ENDRIN	NA	CIS–NONALCHLOR /2
NA	ENDOSULFAN I I (BETA)	NA	OXYCHLORDANE (OCTACHLOREPOXIDE) /2
NA	ENDOSULFAN SULFATE	NA	METHOXYCHLOR
NA	CHLORDANE (TECH. MIXTURE) /1	NA	ENDRIN KETONE
1.2U	PCB–1242 (AROCLOR 1242)		
1.2U	PCB–1254 (AROCLOR 1254)		
1.2U	PCB–1221 (AROCLOR 1221)		

REMARKS ***REMARKS***

* * * FOOTNOTES * * *
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*U– MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT. C-CONFIRMED BY GC/MS
1. WHEN NO VALUE IS REPORTED, SEE CHLORDANE CONSTITUENTS. 2. CONSTITUENTS OF METABOLITES OF TECHNICAL CHLORDANE

PESTICIDES/PCB!S DATA REPORT

PROJECT NO. 93-0145 SAMPLE NO. 73487 SAMPLE TYPE: GROUNDWA PROG ELEM: SSF COLLECTED BY: R MCKEEN
SOURCE: PEPPERS STEEL & ALLO CITY: MEDLEY ST: FL
STATION ID: MO– 2 COLLECTION START: 12/08/92 1130 STOP: 00/00/00

UG/L	ANALYTICAL RESULTS	UG/L	ANALYTICAL RESULTS
NA	ALDRIN	1.2U	PCB–1232 (AROCLOR 1232)
NA	HEPTACHLOR	1.2U	PCB–1248 (AROCLOR 1248)
NA	HEPTACHLOR EPOXIDE	1.2U	PCB–1260 (AROCLOR 1260)
NA	ALPHA–BHC	1.2U	PCB–1016 (AROCLOR 1016)
NA	BETA–BHC	NA	TOXAPHENE
NA	GAMMA–BHC (LINDANE)	NA	CHLORDENE /2
NA	DELTA–BHC	NA	ALPHA–CHLORDENE /2
NA	ENDOSULFAN I (ALPHA)	NA	BETA CHLORDENE /2
NA	DIELDRIN	NA	GAMMA–CHLORDENE /2
NA	4,4' –DDT (P,P'–DDT)	NA	GAMMA–CHLORDANE /2
NA	4,4' –DDE (P,P'–DDE)	NA	TRANS–NONACHLOR /2
NA	4,4' –DDD (P,P'–DDD)	NA	ALPHA–CHLORDANE /2
NA	ENDRIN	NA	CIS–NONALCHLOR /2
NA	ENDOSULFAN I I (BETA)	NA	OXYCHLORDANE (OCTACHLOREPOXIDE) /2
NA	ENDOSULFAN SULFATE	NA	METHOXYCHLOR
NA	CHLORDANE (TECH. MIXTURE) /1	NA	ENDRIN KETONE
1.2U	PCB–1242 (AROCLOR 1242)		
1.2U	PCB–1254 (AROCLOR 1254)		
1.2U	PCB–1221 (AROCLOR 1221)		

REMARKS ***REMARKS***

* * * FOOTNOTES * * *
*A– AVERAGE VALUE *NA– NOT ANALYZED *NAI– INTERFERENCES *J– ESTIMATED VALUE *N– PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
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1. WHEN NO VALUE IS REPORTED, SEE CHLORDANE CONSTITUENTS. 2. CONSTITUENTS OF METABOLITES OF TECHNICAL CHLORDANE

PESTICIDES/PCB!S DATA REPORT

PROJECT NO. 93-0145 SAMPLE NO. 73488 SAMPLE TYPE: GROUNDWA PROG ELEM: SSF COLLECTED BY: R MCKEEN
SOURCE: PEPPERS STEEL & ALLO CITY: MEDLEY ST: FL
STATION ID: MW– 6A COLLECTION START: 12/08/92 1445 STOP: 00/00/00

UG/L	ANALYTICAL RESULTS	UG/L	ANALYTICAL RESULTS
NA	ALDRIN	1.2U	PCB–1232 (AROCLOR 1232)
NA	HEPTACHLOR	1.2U	PCB–1248 (AROCLOR 1248)
NA	HEPTACHLOR EPOXIDE	1.2U	PCB–1260 (AROCLOR 1260)
NA	ALPHA–BHC	1.2U	PCB–1016 (AROCLOR 1016)
NA	BETA–BHC	NA	TOXAPHENE
NA	GAMMA–BHC (LINDANE)	NA	CHLORDENE /2
NA	DELTA–BHC	NA	ALPHA–CHLORDENE /2
NA	ENDOSULFAN I (ALPHA)	NA	BETA CHLORDENE /2
NA	DIELDRIN	NA	GAMMA–CHLORDENE /2
NA	4,4' –DDT (P,P'–DDT)	NA	GAMMA–CHLORDANE /2
NA	4,4' –DDE (P,P'–DDE)	NA	TRANS–NONACHLOR /2
NA	4,4' –DDD (P,P'–DDD)	NA	ALPHA–CHLORDANE /2
NA	ENDRIN	NA	CIS–NONALCHLOR /2
NA	ENDOSULFAN I I (BETA)	NA	OXYCHLORDANE (OCTACHLOREPOXIDE) /2
NA	ENDOSULFAN SULFATE	NA	METHOXYCHLOR
NA	CHLORDANE (TECH. MIXTURE) /1	NA	ENDRIN KETONE
1.2U	PCB–1242 (AROCLOR 1242)		
1.2U	PCB–1254 (AROCLOR 1254)		
1.2U	PCB–1221 (AROCLOR 1221)		

REMARKS ***REMARKS***

* * * FOOTNOTES * * *
*A– AVERAGE VALUE *NA– NOT ANALYZED *NAI– INTERFERENCES *J– ESTIMATED VALUE *N– PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K– ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L– ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U– MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT. C-CONFIRMED BY GC/MS
1. WHEN NO VALUE IS REPORTED, SEE CHLORDANE CONSTITUENTS. 2. CONSTITUENTS OF METABOLITES OF TECHNICAL CHLORDANE

PESTICIDES/PCB!S DATA REPORT

PROJECT NO. 93-0145 SAMPLE NO. 73489 SAMPLE TYPE: GROUNDWA PROG ELEM: SSF COLLECTED BY: R MCKEEN
SOURCE: PEPPERS STEEL & ALLO CITY: MEDLEY ST: FL
STATION ID: MW– 6CR COLLECTION START: 12/08/92 1535 STOP: 00/00/00

UG/L	ANALYTICAL RESULTS	UG/L	ANALYTICAL RESULTS
NA	ALDRIN	1.2U	PCB–1232 (AROCLOR 1232)
NA	HEPTACHLOR	1.2U	PCB–1248 (AROCLOR 1248)
NA	HEPTACHLOR EPOXIDE	1.2U	PCB–1260 (AROCLOR 1260)
NA	ALPHA–BHC	1.2U	PCB–1016 (AROCLOR 1016)
NA	BETA–BHC	NA	TOXAPHENE
NA	GAMMA–BHC (LINDANE)	NA	CHLORDENE /2
NA	DELTA–BHC	NA	ALPHA–CHLORDENE /2
NA	ENDOSULFAN I (ALPHA)	NA	BETA CHLORDENE /2
NA	DIELDRIN	NA	GAMMA–CHLORDENE /2
NA	4,4' –DDT (P,P'–DDT)	NA	GAMMA–CHLORDANE /2
NA	4,4' –DDE (P,P'–DDE)	NA	TRANS–NONACHLOR /2
NA	4,4' –DDD (P,P'–DDD)	NA	ALPHA–CHLORDANE /2
NA	ENDRIN	NA	CIS–NONALCHLOR /2
NA	ENDOSULFAN I I (BETA)	NA	OXYCHLORDANE (OCTACHLOREPOXIDE) /2
NA	ENDOSULFAN SULFATE	NA	METHOXYCHLOR
NA	CHLORDANE (TECH. MIXTURE) /1	NA	ENDRIN KETONE
1.2U	PCB–1242 (AROCLOR 1242)		
1.2U	PCB–1254 (AROCLOR 1254)		
1.2U	PCB–1221 (AROCLOR 1221)		

REMARKS ***REMARKS***

* * * FOOTNOTES * * *
*A– AVERAGE VALUE *NA– NOT ANALYZED *NAI– INTERFERENCES *J– ESTIMATED VALUE *N– PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K– ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L– ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U– MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT. C-CONFIRMED BY GC/MS
1. WHEN NO VALUE IS REPORTED, SEE CHLORDANE CONSTITUENTS. 2. CONSTITUENTS OF METABOLITES OF TECHNICAL CHLORDANE

PESTICIDES/PCB!S DATA REPORT

PROJECT NO. 93-0145 SAMPLE NO. 73490 SAMPLE TYPE: GROUNDWA PROG ELEM: SSF COLLECTED BY: R MCKEEN
SOURCE: PEPPERS STEEL & ALLO CITY: MEDLEY ST: FL
STATION ID: EB– 1 COLLECTION START: 12/09/92 0745 STOP: 00/00/00

UG/L	ANALYTICAL RESULTS	UG/L	ANALYTICAL RESULTS
NA	ALDRIN	1.2U	PCB–1232 (AROCLOR 1232)
NA	HEPTACHLOR	1.2U	PCB–1248 (AROCLOR 1248)
NA	HEPTACHLOR EPOXIDE	1.2U	PCB–1260 (AROCLOR 1260)
NA	ALPHA–BHC	1.2U	PCB–1016 (AROCLOR 1016)
NA	BETA–BHC	NA	TOXAPHENE
NA	GAMMA–BHC (LINDANE)	NA	CHLORDENE /2
NA	DELTA–BHC	NA	ALPHA–CHLORDENE /2
NA	ENDOSULFAN I (ALPHA)	NA	BETA CHLORDENE /2
NA	DIELDRIN	NA	GAMMA–CHLORDENE /2
NA	4,4' –DDT (P,P'–DDT)	NA	GAMMA–CHLORDANE /2
NA	4,4' –DDE (P,P'–DDE)	NA	TRANS–NONACHLOR /2
NA	4,4' –DDD (P,P'–DDD)	NA	ALPHA–CHLORDANE /2
NA	ENDRIN	NA	CIS–NONALCHLOR /2
NA	ENDOSULFAN I I (BETA)	NA	OXYCHLORDANE (OCTACHLOREPOXIDE) /2
NA	ENDOSULFAN SULFATE	NA	METHOXYCHLOR
NA	CHLORDANE (TECH. MIXTURE) /1	NA	ENDRIN KETONE
1.2U	PCB–1242 (AROCLOR 1242)		
1.2U	PCB–1254 (AROCLOR 1254)		
1.2U	PCB–1221 (AROCLOR 1221)		

REMARKS ***REMARKS***

* * * FOOTNOTES * * *
*A– AVERAGE VALUE *NA– NOT ANALYZED *NAI– INTERFERENCES *J– ESTIMATED VALUE *N– PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K– ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L– ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U– MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT. C-CONFIRMED BY GC/MS
1. WHEN NO VALUE IS REPORTED, SEE CHLORDANE CONSTITUENTS. 2. CONSTITUENTS OF METABOLITES OF TECHNICAL CHLORDANE

PESTICIDES/PCB!S DATA REPORT

PROJECT NO. 93-0145 SAMPLE NO. 73491 SAMPLE TYPE: GROUNDWA PROG ELEM: SSF COLLECTED BY: R MCKEEN
SOURCE: PEPPERS STEEL & ALLO CITY: MEDLEY ST: FL
STATION ID: MW– 6B COLLECTION START: 12/09/92 1025 STOP: 00/00/00

UG/L	ANALYTICAL RESULTS	UG/L	ANALYTICAL RESULTS
NA	ALDRIN	1.2U	PCB–1232 (AROCLOR 1232)
NA	HEPTACHLOR	1.2U	PCB–1248 (AROCLOR 1248)
NA	HEPTACHLOR EPOXIDE	1.2U	PCB–1260 (AROCLOR 1260)
NA	ALPHA–BHC	1.2U	PCB–1016 (AROCLOR 1016)
NA	BETA–BHC	NA	TOXAPHENE
NA	GAMMA–BHC (LINDANE)	NA	CHLORDENE /2
NA	DELTA–BHC	NA	ALPHA–CHLORDENE /2
NA	ENDOSULFAN I (ALPHA)	NA	BETA CHLORDENE /2
NA	DIELDRIN	NA	GAMMA–CHLORDENE /2
NA	4,4' –DDT (P,P'–DDT)	NA	GAMMA–CHLORDANE /2
NA	4,4' –DDE (P,P'–DDE)	NA	TRANS–NONACHLOR /2
NA	4,4' –DDD (P,P'–DDD)	NA	ALPHA–CHLORDANE /2
NA	ENDRIN	NA	CIS–NONALCHLOR /2
NA	ENDOSULFAN I I (BETA)	NA	OXYCHLORDANE (OCTACHLOREPOXIDE) /2
NA	ENDOSULFAN SULFATE	NA	METHOXYCHLOR
NA	CHLORDANE (TECH. MIXTURE) /1	NA	ENDRIN KETONE
1.2U	PCB–1242 (AROCLOR 1242)		
1.2U	PCB–1254 (AROCLOR 1254)		
1.2U	PCB–1221 (AROCLOR 1221)		

REMARKS ***REMARKS***

* * * FOOTNOTES * * *
*A– AVERAGE VALUE *NA– NOT ANALYZED *NAI– INTERFERENCES *J– ESTIMATED VALUE *N– PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K– ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L– ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U– MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT. C-CONFIRMED BY GC/MS
1. WHEN NO VALUE IS REPORTED, SEE CHLORDANE CONSTITUENTS. 2. CONSTITUENTS OF METABOLITES OF TECHNICAL CHLORDANE

PESTICIDES/PCB!S DATA REPORT

PROJECT NO. 93-0145 SAMPLE NO. 73492 SAMPLE TYPE: GROUNDWA PROG ELEM: SSF COLLECTED BY: R MCKEEN
SOURCE: PEPPERS STEEL & ALLO CITY: MEDLEY ST: FL
STATION ID: MO– 3 COLLECTION START: 12/09/92 1330 STOP: 00/00/00

UG/L	ANALYTICAL RESULTS	UG/L	ANALYTICAL RESULTS
NA	ALDRIN	1.2U	PCB–1232 (AROCLOR 1232)
NA	HEPTACHLOR	1.2U	PCB–1248 (AROCLOR 1248)
NA	HEPTACHLOR EPOXIDE	1.2U	PCB–1260 (AROCLOR 1260)
NA	ALPHA–BHC	1.2U	PCB–1016 (AROCLOR 1016)
NA	BETA–BHC	NA	TOXAPHENE
NA	GAMMA–BHC (LINDANE)	NA	CHLORDENE /2
NA	DELTA–BHC	NA	ALPHA–CHLORDENE /2
NA	ENDOSULFAN I (ALPHA)	NA	BETA CHLORDENE /2
NA	DIELDRIN	NA	GAMMA–CHLORDENE /2
NA	4,4' –DDT (P,P'–DDT)	NA	GAMMA–CHLORDANE /2
NA	4,4' –DDE (P,P'–DDE)	NA	TRANS–NONACHLOR /2
NA	4,4' –DDD (P,P'–DDD)	NA	ALPHA–CHLORDANE /2
NA	ENDRIN	NA	CIS–NONALCHLOR /2
NA	ENDOSULFAN I I (BETA)	NA	OXYCHLORDANE (OCTACHLOREPOXIDE) /2
NA	ENDOSULFAN SULFATE	NA	METHOXYCHLOR
NA	CHLORDANE (TECH. MIXTURE) /1	NA	ENDRIN KETONE
1.2U	PCB–1242 (AROCLOR 1242)		
1.2U	PCB–1254 (AROCLOR 1254)		
1.2U	PCB–1221 (AROCLOR 1221)		

REMARKS ***REMARKS***

* * * FOOTNOTES * * *
*A– AVERAGE VALUE *NA– NOT ANALYZED *NAI– INTERFERENCES *J– ESTIMATED VALUE *N– PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K– ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L– ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U– MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT. C-CONFIRMED BY GC/MS
1. WHEN NO VALUE IS REPORTED, SEE CHLORDANE CONSTITUENTS. 2. CONSTITUENTS OF METABOLITES OF TECHNICAL CHLORDANE

PESTICIDES/PCB!S DATA REPORT

PROJECT NO. 93-0145 SAMPLE NO. 73493 SAMPLE TYPE: GROUNDWA PROG ELEM: SSF COLLECTED BY: R MCKEEN
SOURCE: PEPPERS STEEL & ALLO CITY: MEDLEY ST: FL
STATION ID: MO– 1 COLLECTION START: 12/09/92 1620 STOP: 00/00/00

UG/L	ANALYTICAL RESULTS	UG/L	ANALYTICAL RESULTS
NA	ALDRIN	1.2U	PCB–1232 (AROCLOR 1232)
NA	HEPTACHLOR	1.2U	PCB–1248 (AROCLOR 1248)
NA	HEPTACHLOR EPOXIDE	1.2U	PCB–1260 (AROCLOR 1260)
NA	ALPHA–BHC	1.2U	PCB–1016 (AROCLOR 1016)
NA	BETA–BHC	NA	TOXAPHENE
NA	GAMMA–BHC (LINDANE)	NA	CHLORDENE /2
NA	DELTA–BHC	NA	ALPHA–CHLORDENE /2
NA	ENDOSULFAN I (ALPHA)	NA	BETA CHLORDENE /2
NA	DIELDRIN	NA	GAMMA–CHLORDENE /2
NA	4,4' –DDT (P,P'–DDT)	NA	GAMMA–CHLORDANE /2
NA	4,4' –DDE (P,P'–DDE)	NA	TRANS–NONACHLOR /2
NA	4,4' –DDD (P,P'–DDD)	NA	ALPHA–CHLORDANE /2
NA	ENDRIN	NA	CIS–NONALCHLOR /2
NA	ENDOSULFAN I I (BETA)	NA	OXYCHLORDANE (OCTACHLOREPOXIDE) /2
NA	ENDOSULFAN SULFATE	NA	METHOXYCHLOR
NA	CHLORDANE (TECH. MIXTURE) /1	NA	ENDRIN KETONE
1.2U	PCB–1242 (AROCLOR 1242)		
1.2U	PCB–1254 (AROCLOR 1254)		
1.2U	PCB–1221 (AROCLOR 1221)		

REMARKS ***REMARKS***

* * * FOOTNOTES * * *
*A– AVERAGE VALUE *NA– NOT ANALYZED *NAI– INTERFERENCES *J– ESTIMATED VALUE *N– PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K– ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L– ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U– MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT. C-CONFIRMED BY GC/MS
1. WHEN NO VALUE IS REPORTED, SEE CHLORDANE CONSTITUENTS. 2. CONSTITUENTS OF METABOLITES OF TECHNICAL CHLORDANE

SL *SAVANNAH LABORATORIES*
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue C Savannah, GA 31404 C (912) 354-7858 C Fax (912) 352-0165

LOG NO: S2-46148

Received: 10 DEC 92

Mr. Chuck Spalding
GeoTrans
46050 Manekin Plaza, Suite 100
Sterling, VA 20166

Purchase Order: 8651-002

Project: 8651-002/Pepper's Steel
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION, LIQUID SAMPLES	DATE SAMPLED
46148-1	MO-1 (12.09.92) (1533)	12-09-92
46148-2	MO-3 (12.09.92) (1240)	12-09-92
46148-3	MW-6B (12.09.92) (0944)	12-09-92
46148-4	Rinsate (12.09.92) (0719)	12-09-92

PARAMETER	46148-1	46148-2	46148-3	46148-4
PCB's (8080)				
Aroclor-1016, ug/l	<1.0	<1.0	<1.0	<1.0
Aroclor-1221, ug/l	<1.0	<1.0	<1.0	<1.0
Aroclor-1232, ug/l	<1.0	<1.0	<1.0	<1.0
Aroclor-1242, ug/l	<1.0	<1.0	<1.0	<1.0
Aroclor-1248, ug/l	<1.0	<1.0	<1.0	<1.0
Aroclor-1254, ug/l	<1.0	<1.0	<1.0	<1.0
Aroclor-1260, ug/l	<1.0	<1.0	<1.0	<1.0
Arsenic (7060), mg/l	0.0012	0.0029	<0.0010	<0.0010
Lead (7421), mg/l	0.0028	0.0012	0.0027	<0.0010

SL *SAVANNAH LABORATORIES*
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue C Savannah, GA 31404 C (912) 354-7858 C Fax (912) 352-0165

LOG NO: S2-46148

Received: 10 DEC 92

Mr. Chuck Spalding
GeoTrans
46050 Manekin Plaza, Suite 100
Sterling, VA 20166

Purchase Order: 8651-002

Project: 8651-002/Pepper's Steel
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION, QC REPORT FOR LIQUID SAMPLES
46148-5	Method Blank
46148-6	Accuracy (Mean % Recovery)
46148-7	Precision (% RPD)
46148-8	Date Extracted
46148-9	Date Analyzed

PARAMETER	46148-5	46148-6	46148-7	46148-8	46148-9
PCB's (8080)					
Aroclor-1016, ug/l	<1.0	96 %	0 %	12.16.92	12.30.92
Aroclor-1221, ug/l	<1.0	---	---	12.16.92	12.30.92
Aroclor-1232, ug/l	<1.0	---	---	12.16.92	12.30.92
Aroclor-1242, ug/l	<1.0	---	---	12.16.92	12.30.92
Aroclor-1248, ug/l	<1.0	---	---	12.16.92	12.30.92
Aroclor-1254, ug/l	<1.0	---	---	12.16.92	12.30.92
Aroclor-1260, ug/l	<1.0	100 %	0 %	12.16.92	12.30.92
Arsenic (7060), mg/l	<0.0010	108 %	11 %	---	01.06.93
Lead (7421), mg/l	<0.0010	92 %	1.1 %	---	12.22.92

Methods: EPA 40 CFR Part 136

Beverly A. Hughes

SL *SAVANNAH LABORATORIES*
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue C Savannah, GA 31404 C (912) 354-7858 C Fax (912) 352-0165

LOG NO: S2-46171

Received: 11 DEC 92

Mr. Chuck Spalding
GeoTrans
46050 Manekin Plaza, Suite 100
Sterling, VA 20166

Purchase Order: 8651-002

Project: 8651-002/Pepper Steel
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION, LIQUID SAMPLES	DATE SAMPLED
46171-1	MW-1A (12.10.92) (1459)	12-10-92
46171-2	MW-1B (12.10.92) (1558)	12-10-92
46171-3	MW-4C (12.10.92) (1235)	12-10-92
46171-4	MW-5B (12.10.92) (0735)	12-10-92

PARAMETER	46171-1	46171-2	46171-3	46171-4
PCB's (8080)				
Aroclor-1016, ug/l	<1.0	<1.0	<1.0	<1.0
Aroclor-1221, ug/l	<1.0	<1.0	<1.0	<1.0
Aroclor-1232, ug/l	<1.0	<1.0	<1.0	<1.0
Aroclor-1242, ug/l	<1.0	<1.0	<1.0	<1.0
Aroclor-1248, ug/l	<1.0	<1.0	<1.0	<1.0
Aroclor-1254, ug/l	<1.0	<1.0	<1.0	<1.0
Aroclor-1260, ug/l	<1.0	<1.0	<1.0	<1.0
Arsenic (7060), mg/l	<0.0010	<0.0010	<0.0010	<0.0010
Lead (7421), mg/l	0.0029	0.0014	0.0061	0.0016

SL *SAVANNAH LABORATORIES*
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue C Savannah, GA 31404 C (912) 354-7858 C Fax (912) 352-0165

LOG NO: S2-46171

Received: 11 DEC 92

Mr. Chuck Spalding
GeoTrans
46050 Manekin Plaza, Suite 100
Sterling, VA 20166

Purchase Order: 8651-002

Project: 8651-002/Pepper Steel
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION, QC REPORT FOR LIQUID SAMPLES
46171-5	Method Blank
46171-6	Accuracy (Mean % Recovery)
46171-7	Precision (% RPD
46171-8	Date Extracted
46171-9	Date Analyzed

PARAMETER	46171-5	46171-6	46171-7	46171-8	46171-9
PCB's (8080)					
Aroclor-1016, ug/l	<1.0	96 %	0 %	12.16.92	12.30.92
Aroclor-1221, ug/l	<1.0	---	---	12.16.92	12.30.92
Aroclor-1232, ug/l	<1.0	---	---	12.16.92	12.30.92
Aroclor-1242, ug/l	<1.0	---	---	12.16.92	12.30.92
Aroclor-1248, ug/l	<1.0	---	---	12.16.92	12.30.92
Aroclor-1254, ug/l	<1.0	---	---	12.16.92	12.30.92
Aroclor-1260, ug/l	<1.0	100 %	0 %	12.16.92	12.30.92
Arsenic (7060), mg/l	<0.0010	108 %	11 %	---	01.06.93
Lead (7421), mg/l	<0.0010	92 %	1.1 %	---	12.22.92

Methods: EPA SW-846

Beverly A. Hughes

SL *SAVANNAH LABORATORIES*
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue C Savannah, GA 31404 C (912) 354-7858 C Fax (912) 352-0165

LOG NO: S2-46074

Received: 08 DEC 92

Mr. Chuck Spalding
GeoTrans
46050 Manekin Plaza, Suite 100
Sterling, VA 20166

Purchase Order: 8651-002

Project: PEPPER'S STEEL & ALLOYS
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION, LIQUID SAMPLES	DATE SAMPLED
46074-1	MW-4A (12.07.92) (0945)	12-07-92
46074-2	MW-4B (12.07.92) (1329)	12-07-92
46074-3	MW-5A (12.07.92) (1609)	12-07-92
46074-4	MW-8A (12.07.92) (1730)	12-07-92

PARAMETER	46074-1	46074-2	46074-3	46074-4
PCB's (8080)				
Aroclor-1016, ug/l	<1.0	<1.0	<1.0	<1.0
Aroclor-1221, ug/l	<1.0	<1.0	<1.0	<1.0
Aroclor-1232, ug/l	<1.0	<1.0	<1.0	<1.0
Aroclor-1242, ug/l	<1.0	<1.0	<1.0	<1.0
Aroclor-1248, ug/l	<1.0	<1.0	<1.0	<1.0
Aroclor-1254, ug/l	<1.0	<1.0	<1.0	<1.0
Aroclor-1260, ug/l	<1.0	<1.0	<1.0	<1.0
Arsenic (7060), mg/l	<0.0010	<0.0010	<0.0010	<0.0010
Lead (7421), mg/l	0.0029	<0.0010	0.0021	<0.0010

SL *SAVANNAH LABORATORIES*
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue ℃ Savannah, GA 31404 ℃ (912) 354-7858 ℃ Fax (912) 352-0165

LOG NO: S2-46074

Received: 08 DEC 92

Mr. Chuck Spalding
GeoTrans
46050 Manekin Plaza, Suite 100
Sterling, VA 20166

Purchase Order: 8651-002

Project: PEPPER'S STEEL & ALLOYS
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION, LIQUID SAMPLES	DATE SAMPLED
46074-5	MW-10A (12.07.92) (0945)	12-07-92

PARAMETER	46074-5
PCB's (8080)	
Aroclor-1016, ug/l	<1.0
Aroclor-1221, ug/l	<1.0
Aroclor-1232, ug/1	<1.0
Aroclor-1242, ug/l	<1.0
Aroclor-1248, ug/1	<1.0
Aroclor-1254, ug/l	<1.0
Aroclor-1260, ug/l	<1.0

SL *SAVANNAH LABORATORIES*
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue C Savannah, GA 31404 C (912) 354-7858 C Fax (912) 352-0165

LOG NO: S2-46074

Received: 08 DEC 92

Mr. Chuck Spalding
GeoTrans
46050 Manekin Plaza, Suite 100
Sterling, VA 20166

Purchase Order: 8651-002

Project: PEPPER'S STEEL & ALLOYS
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION, QC REPORT FOR LIQUID SAMPLES
46074-6	Method Blank Liquid
46074-7	Accuracy (Mean % Recovery)
46074-8	Precision (% RPD)
46074-9	Date Extracted
46074-10	Date Analyzed

PARAMETER	46074-6	46074-7	46074-8	46074-9	46074-10
PCB's (8080)					
Aroclor-1016, ug/l	<1.0	93 %	3.2 %	12.12.92	12.29.92
Aroclor-1221, ug/l	<1.0	---	---	12.12.92	12.29.92
Aroclor-1232, ug/l	<1.0	---	---	12.12.92	12.29.92
Aroclor-1242, ug/l	<1.0	---	---	12.12.92	12.29.92
Aroclor-1248, ug/l	<1.0	---	---	12.12.92	12.29.92
Aroclor-1254, ug/l	<1.0	---	---	12.12.92	12.29.92
Aroclor-1260, ug/l	<1.0	98 %	10 %	12.12.92	12.29.92
Arsenic (7060), mg/l	<0.0010	108 %	11 %	---	01.06.93
Lead (7421), mg/l	<0.0010	88 %	1.1 %	---	12.22.92

Methods: EPA SW-846

Beverly A. Hughes

SL *SAVANNAH LABORATORIES*
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue C Savannah, GA 31404 C (912) 354-7858 C Fax (912) 352-0165

LOG NO: S2-46108

Received: 09 DEC 92

Mr. Chuck Spalding
GeoTrans
4605O Manekin Plaza, Suite 100
Sterling, VA 20166

Project: 8651-002/PEPPER'S STEEL & ALLOY
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION, LIQUID SAMPLES	DATE SAMPLED
46108-1	MW-7A (12.08.92) (1641)	12-08-92
46108-2	MW-6A (12.08.92) (1410)	12-08-92
46108-3	MW-6CR (12.08.92) (1510)	12-08-92
46108-4	MO-2 (12.08.92) (1056)	12-08-92
46108-5	MW-9A (12.08.92) (0910)	12-08-92

PARAMETER	46108-1	46108-2	46108-3	46108-4	46108-5
PCB's (8080)					
Aroclor-1016, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
Aroclor-1221, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
Aroclor-1232, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
Aroclor-1242, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
Aroclor-1248, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
Aroclor-1254, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
Aroclor-1260, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
Arsenic (7060), mg/l	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Lead (7421), mg/l	<0.0010	0.016	<0.0010	0.0048	<0.0010

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& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue ℂ Savannah, GA 31404 ℂ (912) 354-7858 ℂ Fax (912) 352-0165

LOG NO: S2-46108

Received: 09 DEC 92

Mr. Chuck Spalding
GeoTrans
46050 Manekin Plaza, Suite 100
Sterling, VA 20166

Project: 8651-002/PEPPER'S STEEL & ALLOY
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION, LIQUID SAMPLES	DATE SAMPLED
46108-6	MW-11A (12.08.92) (1410)	12-07-92

PARAMETER	46108-6
Lead (7421), mg/l	0.014
Arsenic (7060), mg/l	<0.0010

SL *SAVANNAH LABORATORIES*
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue C Savannah, GA 31404 C (912) 354-7858 C Fax (912) 352-0165

LOG NO: S2-46108B

Received: 09 DEC 92

Mr. Chuck Spalding
GeoTrans
46050 Manekin Plaza, Suite 100
Sterling, VA 20166

Project: 8651-002/Pepper's Steel & Alloy
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
46108B-1	MW-7A (12.08.92) (1641)	12-08-92
46108B-2	MW-6A (12.08.92) (1410)	12-08-92
46108B-3	MW-6CR (12.08.92) (1510)	12-08-92
46108B-4	MO-2 (12.08.92) (1056)	12-08-92
46108B-5	MW-9A (12.08.92) (0910)	12-08-92

PARAMETER	46108B-1	46108B-2	46108B-3	46108B-4	46108B-5
Lead (7421), mg/l	<0.0010	O.015	<0.0010	0.0048	<0.0010

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5102 LaRoche Avenue ℂ Savannah, GA 31404 ℂ (912) 354-7858 ℂ Fax (912) 352-0165

LOG NO: S2-46108B

Received: 09 DEC 92

Mr. Chuck Spalding
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46050 Manekin Plaza, Suite 100
Sterling, VA 20166

Project: 8651-002/Pepper's Steel & Alloy
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION, LIQUID SAMPLES	DATE SAMPLED
46108B-6	MW-11A (12.08.92) (1410)	12-07-92

PARAMETER	46108B-6
Lead (7421), mg/l	0.014

SL *SAVANNAH LABORATORIES*
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue C Savannah, GA 31404 C (912) 354-7858 C Fax (912) 352-0165

LOG NO: S2-46108B

Received: 09 DEC 92

Mr. Chuck Spalding
GeoTrans
46050 Manekin Plaza, Suite 100
Sterling, VA 20166

Project: 8651-002/Pepper's Steel & Alloy
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION, QC REPORT FOR LIQUID SAMPLES
46108B-7	Method Blank
46108B-8	Accuracy (Mean % Recovery)
46108B-9	Precision (% RPD)
46108B-10	Date Analyzed

PARAMETER	46108B-7	46108B-8	46108B-9	46108B-10
Lead (7421), mg/l	<0.0010	97 %	1.0 %	02.01.93

Methods: EPA SW-846

Beverly A. Hughes

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APPENDIX F

DERM CORRESPONDENCE

METROPOLITAN DADE COUNTY, FLORIDA

METRO-DADE

METRO-DADE CENTER

ENVIRONMENTAL RESOURCES MANAGEMENT
SUITE 1510
111 N.W. 1st STREET
MIAMI, FLORIDA 33128-1971
(305) 375-3576

July 29, 1992

Diane M. Scott
Remedial Project Manager
South Superfund Remedial Branch
United States Environmental Protection Agency
345 Courtland Street, N.E.
Atlanta, Georgia 30365

RE: Pepper's Steel National Priorities List (NPL) Site Medley,
Dade County, Florida.
Post Remediation Reassessment of Groundwater Monitoring

Dear Ms. Scott:

The Hazardous Waste Section of the Department of Environmental Resources Management (DERM) has reviewed the referenced submittal, dated June 22, 1992, and offers the following comments:

This three (3) year Post Remediation Reassessment of Groundwater Monitoring has been submitted to the US Environmental Protection Agency pursuant to Paragraph XII, Subparagraph A, of the Consent Decree. In this subparagraph "FPL may request that the Regional Administrator modify or terminate the provisions of the monitoring program".

The following recommendations are made in the referenced submittal;

1. Discontinue sampling for PCB's and arsenic in all monitoring wells.

2. Discontinue sampling for Lead in all monitoring wells except MW-6A and MW-6CR which are proposed to be sampled on one (1) more occasion. If at that time, the concentration of lead is below the "Action Level" of 50 ug/l, then sampling at those monitoring wells should also be discontinued.

3. Water Level Measurements be discontinued.

It is this Department's opinion that three (3) years of post remediation groundwater monitoring is not sufficient to thoroughly assess the continuing integrity of the monolith structure.

Post-it™ brand fax transmittal memo 7671 | # of pages ▸ 2

To Ralph Mckeen	From Enda Colleran
Co. Roy F. Weston	Co. DERM
Dept.	Phone # (305) 375 3321
Fax # (404) 368-1168	Fax # 375 3360

Therefore, DERM recommends continued monitoring be conducted at this site as follows; groundwater samples should be collected from monitoring wells MW-6A, MW-6CR, MW-5B, MW-8A and MO-1 on an annual basis and analyzed for PCB's, arsenic and lead. After another three (3) year period of monitoring has been concluded, more data will be available to determine that the integrity of the monolith structure has not been degraded and that off-site contamination is not detected. In addition, it is recommended that water level measurements should continue.

Furthermore, DERM requests EPA's assistance to allow this Department to obtain split samples from this site during future groundwater sampling events. In the past, DERM representatives have been on-site with the intention of obtaining split samples, only to be denied this option by representatives of FPL. This request is made pursuant to Paragraph IX, Subparagraph C, of the Consent Decree which states, in pertinent part:

> ?The RPM may designate a reasonable number of other representatives from EPA, DER, DERM or their contractors or consultants to observe and monitor the progress of any activity undertaken in furtherance of or pursuant to this Consent Decree."

If you have any questions regarding this letter, please call Enda Colleran of the Hazardous Waste Section at (305) 375-3321.

Sincerely,

Robert E. Johns, Chief
Hazardous Waste Section
POLLUTION PREVENTION DIVISION

EC:ml

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APPENDIX G

PROPOSED OPERATIONS AND MAINTENANCE PLAN

PROPOSED

OPERATIONS AND MAINTENANCE PLAN

PEPPER'S STEEL AND ALLOYS SITE

MEDLEY, FLORIDA

July 1989

SUPERFUND BRANCH

WASTE MANAGEMENT DIVISION

U.S.E.P.A.- REGION IV

ATLANTA, GEORGIA

DOCUMENT CONTROL NUMBER 1400-2D-ABmX

TABLE OF CONTENTS

Section

1.0 INTRODUCTION

The purpose of this Operation and Maintenance (O & M) Plan is to provide observation and maintenance procedures to be followed during the closure and 30-year post-closure periods at the Pepper's Steel and Alloys Superfund National Priority List Site in Medley, Florida. Regularly scheduled observations and maintenance activities shall be performed to:

* observe the exposed components of the facility,

* determine and document if potential problem areas exist at the site based on these observations,

* correct any problem areas observed, and

* sample the site monitor well system and surface waters to determine the effects of the facility on the shallow ground water system.

This O & M Plan includes the following sections:

* Site Background

* Maintenance Tasks

* Sampling and Analysis of Surface Water and Ground Water Monitoring Wells.

This 0 & M Plan assumes that the Site property will not be used for commercial or residential development for the next 30 years and that it must be maintained in its present condition for that length of time.

2.0 SITE BACKGROUND

The Pepper's Steel and Alloys Site is located on N.W. South River Drive in Medley, Florida. It consists of three parcels of land having a total area of approximately 25 acres. The Site is bounded on the south by N.W. 109th Street and lies between the Miami Canal on the east and the Florida East Coast Railroad on the west.

In general, the Site is relatively level, and consists of layers of fill placed above naturally-occurring organic loam and peat, which in turn lie above sand and limestone formations. Ground water elevations are constant throughout the Site, several feet below the surface.

At various times since at least the mid-1960's, portions of the Site reportedly were used for (among other activities) storage of scrap materials, including machinery, vehicles, aircraft, oil tanks, transformers and batteries; recovery of metals from those materials; truck and hydraulic equipment repair; fiberglass boat construction; battery breaking and manufacture; sandblasting; paint spraying; and concrete production.

The results of the U.S. EPA's Remedial Investigation/Feasibility Study (RI/FS) for this Site indicated that the soils in parts

of the site contained lead, arsenic, and PCBs. The remedial action selected for this Site in the March 12, 1986 Enforcement Decision Document (EDD) included the following activities:

1. *The excavation of soils identified to contain concentrations of PCBs in excess of 1 ppm, lead in excess of 1,000 ppm and arsenic in excess of 5 ppm;*

2. *Solidification/stabilization (processing) of the excavated soils with a Portland cement/flyash mixture and replacement on-site;*

3. *Off-site disposal in compliance with TSCA Part 761 of oil that collects in the soil excavation;*

4. *Provision for institutional controls on future land use;*

5. *A monitoring program to verify the performance of the solidified/stabilized soils.*

Solidification/fixation began in 1987 was completed in 1988.

3.0 FACILITIES OBSERVATIONS

The following sections outline the frequencies and types of observations to be performed during the closure and 30-year post-closure period at the Site. Each section includes:

* *a brief overview of the specific components to be observed,*

* *the rationale for performing these specific observations, and*

* *a detailed schedule of observation activities.*

An O & M Field Observation Report form for the purpose of documenting these observations is given in Appendix A.

A topographic survey will be performed on a predefined schedule; every three years for the first nine years, every five years for years ten through twenty-four and then once in year thirty. Any problems observed may result in additional surveys being completed to maintain closer records of the conditions.

3.1 COVER

The design intent of the crushed limestone cover is to reduce the erosion of the fill surface due to wind and surface water and to eliminate infiltration of rains vertically into the fill. Sections 3.1.1 through 3.1.5 describe specific elements of the crushed limestone cover that require regularly scheduled observations during the closure and post-closure period. Observations and measurements obtained during these regular observations shall be recorded in the O & M Field Observation Report, Appendix A.

3.1.1 Settlement of Cover

The fill's crushed limestone cover is sloped at approximately 1.25 percent. Slopes in excess of 5 percent may result in accelerated erosion. To maintain the present slope, regular field observations and scheduled topographic surveys shall be performed.

Regular observations for settlement of the cover consist of walking the perimeter of the cover and making visual observations of the condition of the cover slopes. If visual observations indicate localized settlement within a 20-foot diameter area, field measurement in the area should then be performed. Settlement greater than 6 inches in any 20-foot diameter area shall be considered major settlement and should be evaluated by a registered professional engineer specializing in geotechnical engineering or by a registered professional geologist specializing in geotechnology. Settlement less than 6 inches in any 20-foot diameter area shall be considered minor settlement. Section 4.1.1 describes the maintenance actions to be taken to correct minor settlement of the cap.

Settlement should be measured in the field using a minimum 20-foot long rigid board or pole spanning the area of settlement. Vertical settlement in this area should be measured as the perpendicular distance from the base of the reference board to the ground surface at the point of maximum subsidence using a ruler or tape accurate to 0.25 inch.

3.1.2 Cover Erosion

Erosion of the crushed limestone cover should be prevented to protect the underlying components of the cover. This observation consists of walking the entire area of the cover and making visual observations for indications of erosional features such as:

* swales greater than 1 foot wide and 2 inches deep;

* cracks greater than 1/4 inch wide and 3 inches deep; and

* areas of erosional damage at the perimeter of the cover.

Section 4.2.1 describes the maintenance actions to correct cover erosion.

3.1.3 Leachate Seepage

While it is expected that there will be no leachate to seep from the fill, signs of any kind of seepage should be looked for and recorded. Odors and unusual colors as well as areas that remain continually moist or wet should be recorded.

3.1.4 Ponded Water

The presence of ponded water on the cover may indicate settlement of the cover. Observations of the cover consist of identifying areas of ponded water larger than 5 feet in diameter by 3 inches deep. Maintenance to repair areas of pondinq are described in Section 4.1.1.

3.1.5 Vegetation

Any vegetation qrowing and gaining a foothold on the crushed limestone cover or at the sides of the perimeter drainage ditch should be removed and the resulting hole(s) patched with crushed limestone.

3.2 PERIMETER DRAINAGE DITCH SYSTEM

The perimeter drainage system is designed to control and direct the flow of surface water away from the fill cover. Sections 3.2.1 through 3.2.4 describe specific elements of the drainage system that require regular observations. All observations and measurements obtained during the observation shall be reported in the O and M Field Observation Report, Appendix A.

3.2.1 Ditch Slope Sloughing

The gravel fill in the perimeter drainage ditch reduces erosion and provides slope stabilization for the side slopes. Erosion and sloughing of these slopes should be prevented to maintain the original channel alignment. Observation of the drainage system consists of walking the length of the drainage ditch and making visual observations of the following:

* *sloughing;*

* *sedimentation;*

* *erosion; and*

* *uneven or irregular spacing of riprap.*

Section 4.2.2 describes the maintenance actions for repairing ditch slope sloughing.

3.2.2 Vegetation

Growth of vegetation within the perimeter drainage ditch system reduces the ditch system capacity. Observation of the drainage system consists of walking the length of the drainage ditch and making visual observations for vegetative growth. Maintenance actions to control vegetative growth in the drainage system are described in Section 4.3.2.

3.2.3 Ponding

Ponded water in the perimeter drainage ditch system may indicate a flattening or settling of the ditch bottom slope, possibly due to settlement or localized erosion. Sedimentation and/or vegetative growth may cause the ditch to dam up and water to accumulate locally causing further vegetation and sedimentation. Observation for ponding consists of identifying areas of ponded water larger than approximately 16 square feet in plan dimension. Ponded ditch areas may be indicated by only small amounts of standing water at the top of the ditch gravel. Maintenance actions to correct ponded water in the ditch are described in Section 4.1.3.

3.3 MONITORING WELLS

The monitoring well network at the Site will be used to determine the long-term impact of the fill on the shallow and deep ground water aquifers at the Site. Observations consist of visually examining each monitor well for the following:

* *well padlock;*

* *condition of protective casing;*

* *presence of protective structure surrounding well; and*

* *condition of concrete pad.*

Observations made during these events shall be recorded in the O & M Field Observation Report, Appendix A. Maintenance actions to repair monitoring wells are described in Section 4.5. Sampling and analysis of the ground water samples are described in Section 5.0.

3.4 FENCES

The security fence around the Site restricts Site access to authorized personnel only. Observation of the security fence consists of walking the Site perimeter and visually observing the general condition of the fence for the following:

* *holes;*

* *structural deficiencies of the fences, posts, or gates;*

* *security of the gates and locks; and*

* *debris accumulation at the drainage ditch crossings.*

An O and M Field Observation Report (Appendix A) should be completed during each Site observation. Maintenance actions for the security fence are described in Section 4.6.

3.5 ACCESS ROADS

Maintenance of the access roads must be performed to allow access to the Site for regularly scheduled observations and periodic maintenance. Observations of the access road consist of addressing the general condition of the road for safety and accessibility to two-wheel drive vehicles. All observations of the access road shall be recorded in the O and M Field Observation Report, Appendix A. Maintenance tasks for the access road are described in Section 4.7.

4.0 MAINTENANCE TASKS

This section describes the types and frequencies of maintenance tasks required during the post-closure period. The maintenance activities described in Section 4.1 through 4.7 are necessary for the maintenance and repair of the various components of the fill.

4.1 MAINTENANCE AND REPAIR OF SETTLEMENT

This section describes the maintenance tasks associated with repairing settlement of the cover or the drainage ditch. If any specific areas require three consecutive maintenance efforts, then a registered professional engineer specializing in geotechnical engineering or a registered professional geologist specializing in geotechnology shall be contacted to evaluate the situation.

4.1.1 Minor Settlement of the Cover

Minor settlement of the cover (as described in Section 3.1.1) shall be repaired by refilling and recompacting crushed limestone in the area of subsidence and regrading the area to the design contours.

4.1.2 Major Settlement of the Cover

Major settlement of the cover (as described in Section 3.1.1) shall be evaluated by a registered professional engineer specializing in geotechnical engineering or a registered professional geologist specializing in geotechnology.

4.1.3 Settlement of the Perimeter Drainage Ditch

Settlement beneath the perimeter drainage ditch that results in impaired flow shall be repaired by removing the gravel/riprap and recompacting the area with crushed limestone, regrading the ditch bottom, and replacing the gravel/riprap.

4.2 EROSION CONTROL

The following subsections describe the maintenance actions for the repair of erosion of the crushed limestone cover and drainage ditch slopes. If any specific area of erosion requires three

consecutive maintenance efforts, then a registered professional engineer specializing in drainage/hydraulic engineering or a registered professional geologist specializing in hydrogeology shall be contacted to evaluate the situation.

4.2.1 Crushed Limestone Cover

Repairs for the crushed limestone cover erosion shall consist of filling in areas of limestone loss with new crushed limestone to maintain the required cover slope.

4.2.2 Ditch Slopes

Sloughed or missing gravel/riprap on the perimeter drainage ditch slopes shall be replaced by either repositioning the existing gravel or by adding additional gravel. Every effort should be made to maintain the shape of the slope.

4.3 GRASS AND WEED CONTROL

The following subsections describe the maintenance tasks associated with control of vegetation on the crushed limestone cover, in the perimeter drainage ditch, and on the access roads.

4.3.1 Vegetation Control of the Cover

Vegetation (grass, bushes, small trees, etc.) shall be removed from the cover and the resulting hole(s) patched with crushed limestone and regraded to original specifications. The vegetation shall be removed to an off-site permitted landfill.

4.3.2 Vegetation Control in the Drainage Ditch

Vegetation (grass, bushes, small trees, etc.) shall be removed from the drainage ditch so that water can flow in a regular manner through the ditch. Vegetation shall be removed to an off-site permitted landfill.

4.4 LEACHATE SEEPAGE

It is not expected that there will be any problems with leachate seepage. However, seepage of excess cover material moisture should be distinguished from leachate seepage, if possible. The potential occurrence of a leachate seep should be confirmed by sampling the seep or digging shallow excavations. If a leachate seep is detected, a registered professional engineer or a registered professional geologist should be contacted to evaluate further investigation or corrective action.

4.5 MONITORING WELLS

Minor repairs of the monitoring wells include replacing damaged or

missing padlocks or security structures. Wells that are found to be unlocked shall be locked immediately. Cracks in the concrete pads greater than one-quarter inch wide shall be repaired with patching mortar. If protective casings are damaged or cracked, a registered professional engineer specializing in ground water hydrology or a registered professional geologist specializing in hydrogeology should be contacted.

4.6 FENCES

Holes in security fences shall be repaired, patched or replaced with new sections of chain-link fence fabric. Structural problems in the fence such as broken or damaged posts or gates shall be repaired. Broken or missing gate chains or locks shall be replaced or repaired. Debris or soil accumulation at the drainage ditch crossings should be removed.

4.7 ACCESS ROADS

Maintenance of the access roads shall consist of repairing potholes or washouts, performing road regrading, and removing unwanted vegetation.

5.0 WATER QUALITY SAMPLING AND ANALYSIS

Regularly scheduled sampling and analysis of the surface water and ground water at the Site will provide historical water quality and water level data to determine the effects of the fill on the ground water system and surface runoff at the Site.

The 30-year post-closure period water quality sampling schedule is contained in Section 4 of the "Final Report on Remedial Action, Pepper's Steel and Alloys Superfund Site, Medley, Florida, Florida Power & Light Company, June, 1989". Monitor well construction details are also mentioned in the "Final Report on Remedial Action".

6.0 ESTIMATED OPERATION AND MAINTENANCE COSTS

Estimated costs for the performance of this O & M Plan are presented in Table 1, APPENDIX B. The costs in Table 1 represent the present (1989) value of the anticipated costs of all facility observations, routine and non-routine maintenance tasks, and water quality sampling and analysis.

7.0 REPORTING OF RESULTS

Upon completion of each field inspection or maintenance effort a report will be completed. Reports should be delivered to:

State Project Manager
(Re: Pepper's Steel & Alloys Superfund Site)
Florida Department of
Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee
Florida 32301

Remedial Project Manager
(Re: Pepper's Steel & Alloys Site)
Superfund Branch
Waste Management Division
USEPA - Region IV
345 Courtland Street, N.E.
Atlanta
Georgia 30365

8.0 REFERENCES

"Pepper's Steel & Alloys Superfund Site, Medley, Florida, FINAL REPORT ON REMEDIAL ACTION", Florida Power & Light Company, 1989.

"Pepper's Steel & Alloys Site, THE FIXATION/STABILIZATION ALTERNATIVE, QualTEC, Inc., no date.

"Issues in the Application of Cement Based Pozzolanic Grouts to the Permanent Immobilization of Inorganic and Organic Components", QualTEC, Inc., no date.

APPENDIX A:

REPORT OF FIELD OBSERVATIONS

FORMS

REPORT OF FIELD OBSERVATIONS
PEPPER'S STEEL & ALLOYS SITE

---

*Observation Report No.:*_____ *Date of Observation:*_____/_____/_____

Time Arrived On-site: _____ *Time Departed Site:* _____

*Field Personnel:*_____

Section A: Crushed Limestone Cover

		YES*	NO	Not Observed	Comment No.
1.	Minor Settlement of Cover	( )	( )	( )	
2.	Major Settlement of Cover	( )	( )	( )	
3.	Evidence of Erosion	( )	( )	( )	
4.	Evidence of leachate seepage	( )	( )	( )	
5.	Ponded water on cover	( )	( )	( )	

Section B: Perimeter Drainage Ditch System

1.	Sloughing, erosion or vegetation on ditch slopes	( )	( )	( )	
2.	Vegetation growth in ditch channel	( )	( )	( )	
3.	Ponded water, impairment of flow, sedimentation in ditch	( )	( )	( )	

Section C: Monitoring Wells

1.	Wells locked	( )	( )	( )	
2.	Guard posts missing or damaged	( )	( )	( )	
3.	Protective casing missing or damaged	( )	( )	( )	
4.	Concrete pads damaged or cracked	( )	( )	( )	
5.	Possible surface water infiltration into wells	( )	( )	( )	

Section D: Security Fence		YES*	NO	Not Observed	
1.	Holes in the fence	( )	( )	( )	
2.	Structural problems with the fence or gate(s)	( )	( )	( )	
3.	Gate unlocked	( )	( )	( )	
4.	Broken or missing lock	( )	( )	( )	

Section E: Access Road					
1.	Pot holes, erosion of road	( )	( )	( )	
2.	Excessive vegetation on road	( )	( )	( )	

* If yes, assign a comment number in the last column and see page 2 for instructions.

Signature of Observer:_____ Date:_____/_____/_____

REPORT OF FIELD OBSERVATION

PEPPER'S STEEL & ALLOYS SITE

Observation Report No.: _____ Date of Observation: ____/____/____

Instruction: If any item is checked "YES", provide the details of the problem and maintenance recommendations below and indicate the location deficiency on the site map on the next page.

Comment No.	Comment

Comment No.	Corrective Action Performed

Signature of Observer:_____ Date: ____/____/____

APPENDIX B:

COST ESTIMATES

TABLE 1A: Estimated Costs in 1989 Dollars for O & M Activities - Pepper's Steel & Alloys Site, Medley, Florida

	No. Persons Per Trip	No. Trips Per Year	Labor Hours Per Trip	Labor Rate ($/hr)	Vehicle Rate ($/day)
A. FACILITY OBSERVATIONS & SAMPLING ANALYSIS					
Facility Observations	2	2	8	$20	$40
Observation Report	2	2	8	$20	
Water Quality					
Sampling	2	1	8	$20	$40
Analysis					
B. ROUTINE MAINTENANCE ACTIVITIES					
Weed & Tree Control	1	1	8	$20	$40
Topographic Survey		See OMP.		$20	$40
C. NON-ROUTINE MAINTENANCE ACTIVITIES					
Major/Minor Settlement of Ditch or Cover	2	1	8	$20	$50*
Erosion Control (cover, ditch, etc.)	3	2	8	$20	$50
Monitor Wells	2	1	8	$20	$40
Security Fence	2	1	8	$20	$40
Access Road	2	1	8	$20	$50
TOTALs					

Notes:
1. Costs assume Site is not developed for commercial or residential purposes.
2. * Rental truck costs more.
3. ** $35,000/7 yrs.=$5,000 per survey.
   $35,000/30 yrs.=$1,167 avg. per yr.